VIDEOGAME CITIES IN MOTION

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Bobby Schweizer

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VIDEOGAME CITIES IN MOTION

Approved by:

Dr. Celia Pearce, Advisor
School of Literature, Media, and Communication
Georgia Institute of Technology

Dr. Ian Bogost
School of Literature, Media, and Communication
Georgia Institute of Technology

Dr. Carl DiSalvo
School of Literature, Media, and Communication
Georgia Institute of Technology

Dr. Benjamin Flowers
College of Architecture
Georgia Institute of Technology

Dr. Steffen P. Walz
School of Media and Communication
Royal Melbourne Institute of Technology

Date Approved: April 24, 2014

For My Dad.

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CHAPTER 1:
INTRODUCTION

Although I cannot live in a videogame city, these virtual spaces are not unlike the real city millions pass through each day. In fact, at street level New York City's Brooklyn and the **GRAND THEFT AUTO IV**'s Liberty City appear strikingly similar. Most of the time spent in each is getting from point A to point B with as little resistance as possible. I pass by buildings whose contents I know nothing of, I'm subject to rules and regulations that determine my actions, and I experience the flows of the city around me that animate the world with pigeons, pipes, and potholes. We tend to think of cities as concrete, definable entities and characterize them as being filled with people who use streets to get between the buildings where they live, work, and shop. We describe them by their geography, architecture, people, and history and say that these are the characteristics that distinguish the centuries-old American coastline colony of Savannah, GA from the millennia-old Celtic settlement that became Vienna, Austria. But cities are also manifest with varying degrees of intangibility: The White City of the 1893 Chicago World's Fair was constructed to be disassembled, the ideal of the corner diner is captured vividly in Edward Hopper's **NIGHTHAWKS** painting, and Virginia Wolfe's London comes to life in lavishly textured prose. Though they're not tangible, all of these places exude a *cityness* that crosses physical and virtual boundaries because all cities are, as spatial philosopher Edward Soja describes, both *real-and-imagined.*[1] Our physical cities are imbued with fiction; our mediated cities have lives of their own. The "city" is actually a way of thinking about the experience of spatial arrangements and representations of relationships.

The experience of a city is that of a network in motion. These networks—interconnected spaces, pedestrians, dwellings, multi-national corporations, stop signs, trendy restaurants, city councils, and alleyways—are spatialized and distributed. Not only are they *in* motion in that they are active, animated subjects that move around, but they are experienced *through* the motion of traversing the space that connects them. The real-and-imagined city

entangles Florida's Miami, **GRAND THEFT AUTO**'s Vice City, and the jurisdiction of Crockett and Tubbs in **MIAMI VICE**. These are all kinds of cities whose primary differentiation is not their content but their experience. I can walk the sweltering South Beach streets, navigate the virtual space of "Ocean Beach," or watch as the camera's lens follows Sonny Crockett's iconic white Ferrari Testarossa.[2] The characteristics that make these cities unique—identified by Henri Lefebvre as *specificity*—depend on the experience one has with them. Videogames have the capacity to depict a range of urban structures, representations, and systems, and in order to understand their city qualities I have placed them under the lenses of architecture, geography, and urban studies. Cities, as they are represented in games, take many forms, but those I am most interested in can be thought of in terms of Manuel Castell's *spaces of flows*—"purposeful, repetitive, programmable sequences of exchange and interaction between physically disjointed positions held by social actors."[3] Like other cities, these videogame cities are comprised of three ordering principles: the *constitutional* and *representational*, proposed by landscape architectural scholar Douglas Allen, that define and give meaning to structure, and the addition of my own *experiential* interpretation.

Plan of the Present Work

In this dissertation I first examine the literature that has considered the city as a tangible object and an intangible idea to establish the framework of the constitutional, representational, and experiential components. In Chapter 2, I turn my attention to the city as it has been used in videogames, looking at the development of the kinds of polygonal urban worlds popular in commercial videogames, and outlining some of the frequent activities found in game cities. In Chapter 3, I consider the constitutional qualities of game cities and commonly used structures. In Chapter 4, I look at the videogame city as a representational "imaginary" and discuss the many contexts and premises that inform our understanding of the specificity of videogame city space. Chapter 5 illustrates the significance of city infrastructure as representation that is of particular use when thinking

about the various flows of the city. In Chapter 6, I demonstrate that *experience* is a defining component of the city framework and demonstrate that the body in motion is the primary mode of interpretation. And, in Chapter 7, I examine the concept of place as it relates to subjective experience. Lastly, I conclude with a series of short essays detailing my experience of a few videogames cities, followed by thoughts on how to extend this work to other spatial forms.

A Framework for Cities

The work of Henri Lefebvre points to a philosophical process of spatial production: *spatial practice*, *representations of space*, and *spaces of representation*.[4] This process is meant to describe how humans, as inherently spatial creatures, constantly construct and deconstruct our world in both mortar and mind. Be it rooms, buildings, or cities, our spatial practices govern how we interact with a physical environment bound-up in our perceptions and conceptions of how space is used. *Representations of space* refer to the manner by which social and cultural understandings of space guide the conception and function of that space.[5] It is the logical perception of the relationships between objects (physical and non-physical), and is the method by which social and cultural context is brought to physicality. *Representational space* is the lived phenomenological experience of space. It is qualitative, dynamic, symbolic, and is culturally and individually situated in ideology and knowledge.[6] Lefebvre's interest in the city and urbanism are further explored in his books *The Urban Revolution* and *Writings on Cities*, in which he tries to understand the differences between the city across different eras while wrestling with the city as philosophical inquiry more broadly. Lefebvre's writings informed the work of political geographer and urban planner Edward Soja, who provides an excellent interpretation of Lefebvre (shorthanded as conceived, perceived, and lived spaces) and employs the spatial triad to create his own postmodern interpretation of the city.[7] There is real (Firstspace), imagined (Secondspace) and real-and-imagined (Thirdspace). Videogames, like the mediated and themed spaces to which Thirdspace points, are hybrid representations of space that are real-and-imagined.

With the complexities of space as real and imagined in mind, I sought a definition of the city that was ahistorical and open to interpretation. The framework that gives rise to this dissertation is derived from landscape architect and scholar Douglas Allen's *constitutional* and *representational* orders,[8] with my own contribution of an *experiential* order. These address the makeup of urban space, the systems that bring that space to life, and the resulting experience of the world. Allen, drawing on the work of urban historians like Lewis Mumford, says a city must be composed of four *constitutional* elements: boundaries, streets, public places, and monuments. Boundaries create distinctions between the private and the public to join these forces as a collective whole. Streets are a structural unit that arrange space and the movement of bodies. Public places cause the population to be aware of their role as citizens who must relate to one another, and monuments are fixed reminders of a shared socio-cultural experience. Anything that meets these criteria can be considered a city. The *representational* elements in a city are the houses in which the population resides, the structures of industry and commerce, the market that drives the interaction between people, and other public and private institutions. Unlike the *constitutional* elements, which possess a set of requirements, the *representational* elements are what emerge from (or are the catalyst of) the physical. While these categories have been traditionally applied to physical cities, they are also useful for looking at imaginary cities. But because the material of all these cities and their purposes are so different from each other, there needs to be a way of relating them through some shared property. What I am calling the *experiential* order provides the necessary linkage between cities physical and virtual, material and immaterial, real and imagined.

Table 1: Philosophical Alignments of City Space

Lefebvre	Spatial Practice	Representations of Space	Representational Space
Soja	real	imagined	real-and-imagined
Allen	Constitutional	Representational	**Experientia**l (Schweizer)

The lessons learned from putting space in a trialectic process have application elsewhere in the domain of space and games. The categories of *constitution* and *representation* broadly describe the physical structure and activity of the city. The argument Jesper Juul makes in *Half-Real* is analogous: videogames are made up of *rules* that define structures and *fictions* that fill in that structure.[9] While both Allen and Juul's frameworks have their perceived (spatial practice) and conceived (representations of space) components, they each lack a category that describes what it means for a space to be lived. Following Lefebvre and Soja, I call this third category *experiential*. Understanding both the game and real city requires exploring all three.

The city, as the subject of videogame design, bears functional and representational similarities to the real world cities, but possesses its own set of requirements. 3D models, pedestrian AI, traffic algorithms, art textures, racetracks, and climbing mechanics populate these virtual places. In them, players inhabit the roles of law enforcement, criminals, superheroes, skateboarders, and automobiles all with varying effects on experience. The city means different things to the squealing wheels of the Porsche 911 than it does to the hard-boiled detective. Videogame cities are associations of ideas about what cities are and do, manifested through code as intended for a specific use. These uses are determined by the objectives of the game and the mechanics the player can engage with to meet those objectives. Batman needs to be able to grapple and glide across the skyline of Arkham City to quickly track down villains or surprise unsuspecting thugs. Bam Margera needs a series of connected rails and ramps to link high-scoring skateboarding moves. It would be possible to drop **ASSASSIN'S CREED II**'s stealthy killer Ezio Auditore de Firenze into the hunting scenario posed by the wild animal-populated streets of **TOKYO JUNGLE**, but the reverse—a wildebeest stalking Templars in the streets of Florence—would create an immediate disconnect. These built environments are imbued with beliefs about urban structure and function, but are designed to accommodate different kinds of gameplay.

City-based videogames are worth studying because of their ubiquity throughout videogame history and because they provide inroads into two areas of reflective thought. First, they give us a constrained domain for studying spatial media in which ideas are represented primarily through objects and processes arranged in the world. Second, we can use these instances of spatial media to expand upon Lefebvre and Soja's conceptions of *representational spaces* or *real-and-imagined* spaces. I approach this topic by asking a few questions about the videogame city. Why should the videogame city be considered as a subject? What forms does it take? How does it relate to physical cities and the cities portrayed in other media? And how can we use the videogame city to reflect on philosophies or space and the urban? I answer these questions by performing close readings/playings of videogames that take place in cities to identify how our understanding of the urban is negotiated through game and spatial design. The scope of my analysis is limited to games in which the player is embodied in the space—games like **GRAND THEFT AUTO** instead of **SIMCITY**—and those in which urban processes are a part of gameplay. And, perhaps counter-intuitively, all of these game cities are intended for single-person play, which excludes the cities of massively-multiplayer online games and virtual worlds. For the *constitutional order*, I examine the evolution of city design in videogame history to identify common functional and structural components used in games, including architectural and infrastructural components. The *representational order* looks at urban imaginaries, cultural depictions, narrative elements and animating infrastructures. The *experiential order* emerges as players spend time navigating and interacting with the world to understand its specificity.

Making claims about the videogame city requires piecing together the individual components that produce experience. Through emplotment and a unit operational analysis of the game city as it exists in an urban media ecosystem, we can understand placemaking in the real-and-imagined city. Emplotment, a concept used by human geographer J. Nicholas Entrikin, is a way of interpreting the experience of space not as a continuous flow but rather as a series of moments or vignettes strung together in our minds.[10] As Kevin Lynch wrote,

the possibility of single cohesive image of a city is "a highly speculative one,"[11] so it is more likely that our experience is a series of multiple images. This fits well with media scholar Ian Bogost's concept of unit operations, which views expression in texts as configurations of discrete entities that produce meaning.[12] These videogame worlds are engaged with the practice of cities and space and this research draws on the work of authors from multiple disciplines including media studies, game studies, architecture, urban studies, cultural geography, and philosophy. In this dissertation I answer the following questions: What properties do game cities share with other real and imagined cities? How do they build on each other in terms of mechanics and representations? And what are the units that contribute to a sense of place in the videogame city?

The Complexity of Cities

The city is a kind of space. We think of urbanization as natural: cities are the inevitable tendency to consolidate distance, pool resources, and grow networks. But as a highly complex spatial and social process, it's impossible to point to a single cause for the emergence of cities. Reconciling debates about the emergence of the urban form, historian Spiro Kostof does away with definitions: "For us, then, the city form is neutral until it is impressed with specific cultural intent."[13] Distilling individual cities like Nordlingen, Germany and Washington, D.C., into common elements is a fruitless endeavor "unless we can elaborate on the nature of the content that was to be housed within each, and the social premises of the designers."[14] Kostof instead suggests two alternative methods of study. In the first, patterns and elements of urban form should be considered in a historical perspective that de-naturalizes their emergence and makes room for variation.[15] Secondly, we need to understand urban processes—the dynamic and volatile forces that shape the construction of the things we call cities. Spatial and urban philosopher Henri Lefebvre contrasted the definitive object of the city in the world with the urban processes that enabled a "*possible or virtual object.*"[16] Processes enable cities and cities enable processes.

What is a City?

Definitions of the city vary as greatly as do the subjects themselves. Lewis Mumford notes in the opening of *The City in History*, "no single definition will apply to all its manifestations and no single description will cover all its transformations, from the embryonic social nucleus to the complex forms of its maturity and the corporeal disintegration of its old age."[17] As Mumford's six hundred pages reveal, one approach to understanding the city is to trace its many incarnations throughout history. This is not just a material record of archeology, but the immaterial record of language and ritual as well.[18] Cities are also not exclusively the domain of humans; animals congregate, delegate work, and cooperate to build community structures like the beaver dam or the ant hill.[19] For the purposes of his work, however, he establishes a human-centric definition of what cities tend to do:

> *"The city may be described as a structure specially equipped to store and transmit the goods of civilization, sufficiently condensed to afford the maximum amount of facilities in a minimum space, but also capable of structural enlargement to enable it to find a place for the changing needs and the more complex forms of a growing society and its cumulative social heritage."*[20]

Cities tend to have similar characteristics that identify them as such. Cities have streets, be they the narrow corridors of Damascus or the broad avenues of Paris.[21] And while these public structures rest firmly on the earth, the "dynamic component" of the city involves the movement of people, goods, and ideas through waterways, highways, and markets.[22] And there is the "mark of the city"—a visible structure like a temple or monument that is the expression of power.[23] This mark gives the city's denizens something to collectively identify with, even if they disagree with its ideology.

A basic definition of a city would be to identify a geographically situated conglomeration of familiar components: buildings, streets, public and private spaces. Some force has brought its populace together—be it political, geographic, economic, or social—and people exist in close proximity even if their dealings aren't immediately with each other.

Allen's *constitutional* and *representational* elements of the city—the basis of my first two frameworks of analysis—categorize cities using these criteria: Does it have streets? Does it have boundaries that establish public and private? Does it have some sort of monument? Do people engage with this structure? Then it is a city. This definition is useful, especially from a historical perspective, but is inadequate when trying to understand things that are similar to (but aren't exactly) cities as we know them. We think about cities, we mediate them with words and images, we simulate them with code, we recreate them as maps, and we build places like Walt Disney World that function like cities of their own. "Is it a city?" and "what is a city?" become two entirely different questions when we introduce these subjects.

Two of the earliest conceptions of cities typify how definitions have long been in flux. Ancient architect Nicias of Sicily summarized the Greek conception of the city when he wrote, "You are yourselves the town, wherever you choose to settle […] it is men that make the city, not the walls and ships without them..."[24] As described by Aristotle in *The Politics*, the city (as state) was the natural result of man's need for associating with others. The Greek world was comprised of individual cities and their surrounding rural lands and people considered themselves citizens of these city-states rather than members of a single unified group. The arrangement of city-states was influenced by topography that encouraged small, self-sufficient urban settlements throughout modern day Greece and the Ionian coastline of Asia Minor. Population growth was relieved through colonization—groups would splinter off from the major cities and choose a new settlement. New settlements were established with the construction of temples as a kind of "bird house" to bring the gods to the land, but there was no founding ritual associated with the layout of new cities. The Roman conception was quite the opposite: the city made citizens. There were no "Romans" until the founding of the city of Rome in 753 BCE. Its population was drawn from the Italic tribes of Etruscan origin and its foundational myth of Romulus and Remus established the idea of the Roman citizen. This myth served as a model for the foundation of other cities through a ritual template that brought Roman across Europe. A new city could be inaugurated through this

process, while previously existing cities like the Greek Poseidonia could be re-inaugurated on new axes to spread the empire of Rome. For the Greeks, representation gave reason for constitution; for the Romans, the constitution established representation.

Lefebvre marks historical transitions between cities in relation to their economic practices.[25] The agrarian Political City and Mercantile City gave way to the urban Industrial city. Writing in 1970, Lefebvre had no way of knowing what the next city form might look like, but the rise of networked computing has continued the trajectory toward the Critical Zone in which "urban reality, simultaneously amplified and exploded, thus loses the features it inherited from the previous period."[26] The urban fabric becomes so pervasive that the site of the city becomes inadequate for categorization. Things that don't look like cities—sprawling metropolitan suburbs—become urban, while things that don't look urban—shopping plazas—act like cities. As with all definitions, edge-cases like Lefebvre's test our understanding:

> *"If one defines urban reality by dependency vis-a-vis the centre, suburbs are urban. If one defines urban order by a perceptible (legible) relationship between centrality and periphery, suburbs are de-urbanized […] all perceptible, legible urban reality has disappeared: streets, squares, monuments, meeting places."*[27]

Based on these historical changes and the criteria of Allen's definition, our prototypical image of the modern metropolis—New York, Hong Kong, or Paris—is actually hardly typical. Catal Hyuk, ancient Rome, Londinium, Savannah, GA, and Berlin all exist equally as city. But how do they exhibit variation? We can look at their scale, density, language, number of skyscrapers or coffee shops, and make claims about differences, but a city's specificity is not merely a product of structure. Lefebvre posits specificity as philosophical exploration. "The city is itself 'oeuvre'," he writes, "a feature which contrasts with the irreversible tendency toward money and commerce, toward exchange and productions. Indeed, the oeuvre is use value and the product is exchange value."[28] Oeuvre is specificity.

Specificity is the key to understanding how videogame cities operate. Just as there cannot be a general theory of real cities, a unified theory of game cities proves impossible in the face of their difference. Instead, theories of any city real or imagined are best described as a litany of similarities and differences between constitutional, representational, and experiential elements. The first two are easier to identify. In "Representations of the Video Game City," I addressed the commonalities between games set in New York City. Understanding the game city is a matter of constructing spatial awareness through arrangement, navigation, and representational elements.[29] I found commonalities in the spaces that were being represented—landmarks, prototypical buildings, destinations, and themes—and wrote about how players learn to move through space. Expanding on that work, this dissertation is based on the idea that experience is an amalgam of movements and actions.

Hybrid Form of the City

The prominence of urban studies as a discipline in the 1960s expanded an "other" spatial awareness that was unlike the previous efforts that had been oriented toward "perspective and epistemology, fixed mainly on the concrete materiality of spatial forms, on things that can be empirically mapped."[30] Edward Soja refers to these spatial perspective as Firstspace and Secondspace and aligns them with Lefebvre's notions of *perceived* and *conceived* spaces. Thirdspace, he concludes, is the subject of *lived* postmodern experience that entangles real and imagined spaces.

Soja uses "thirding-as-othering" to combat binaries in the same way Lefebvre created a triad to spatialize his philosophy.[31] There is an "inherent spatiality of human life," he writes, exemplified by the primacy of "place, location, locality, landscape, environment, home, city, region, territory, and geography."[32] Binaries between material and immaterial, real and imagined cities can be combatted the same way. Illustrating the artificiality of real/unreal binaries, he opens one of the chapters in *Thirdspace* with a colorful advertisement from a California Office of Tourism about Orange County.

"It's the most California-looking of all the Californias: the most like the movies, the most like the stories, the most like the dream. Orange County is Tomorrowland and Frontierland, merged and inseparable. 18th century mission. 1930s art colony. 1980s corporate headquarters."[33]

Orange County is a "foretaste of the future, a genuine phenomenological *recreation* of everyday life in a brilliantly recombinant postermodern world" that demonstrates how the urban landscape of the United States is becoming a simulation of representations. [34] Turning to Baudrillard, Soja invokes simulacra and hyperreality to describe this new type of space. Simulations (as in recreations of existing things and not software simulations), according to Baudrillard, had become copies with no originals in the postmodern world; representation without equivalence.[35] But it is not just objects like maps or military simulations that come be more "real" than their referent; a place like Disneyland serves as the "perfect model" of simulacra. Soja doesn't interpret simulacra as the bastardization of representation, but rather as an inevitability that emerges alongside the electronic media that so effectively carry its message. "Virtual reality" and "cyberspace" have become popular terms, he notes, and the latter has even spawned the ideas of regions of the world like "cyburbia" and "cyberia."[36] Regarding these postmodern worlds, Soja quotes Celeste Olaquiaga: "history is replaced by geography, stories by maps, memories by scenarios, with everything connected to 'the topography of computer screens and video monitors."[37] Videogame cities are not merely virtual representations of cyburbia, but real worlds brought to life.

Soja also raises awareness of Foucault's then-underutilized 1967 text on the new spaces of technologies that emerge from heterotopias.[38] In this unpublished lecture, Foucault criticizes the obsession with time and historicism of the 19th century and posits the 20th century as one of spatial relations: "We are at a moment, I believe, when our experience of the world is less that of a long life developing through time than that of a network that connects points and intersects with its own skein."[39] He cites the practitioners of structuralism as assailants of the reign of temporality. The importance of the hierarchies of space had first been observed in the Middle Ages: "supercelestial places, as opposed to the

celestial, and the celestial place was in turn opposed to the terrestrial place."[40] These spaces were "opened up by Galileo" who dissolved the hierarchies of the Middle Ages with his "constitution of an infinite, and infinitely open space."[41] Foucault identifies modern technologies such as the computer as raising a new crisis of site. How does one locate "the storage of data [or] the intermediate results of a calculation in the memory of a machine; the circulation of discrete elements with a random output (automobile traffic is a simple case, or indeed the sounds on a telephone line)"?[42] The rhizomatic nature of sortable data and the computer raised a long dormant question: does information occupy space? If it does, says Foucault, it is because it is because of connections and juxtapositions. "Our epoch is one in which space takes for us the form of relations among sites," and it is arrangement, no hierarchy, that constitutes the meaning of space.[43]

The complexities of spatial process require new methods of description. Addressing movement, Foucault poses describing the set of relations that define the sites of transportation. [44] "A train is an extraordinary bundle of relations," asserts Foucault, "because it is something through which one goes, it is also something by means of which one can go from one point to another, and then it is also something that goes by."[45] Transportation's cluster of relations are defined by other actors in the network: "the sites of temporary relaxation—cafes, cinemas, and beaches" and "the close or semi-closed sites of rest—the house, the bedroom, the bed, et cetera." Videogames exhibit the same interrelated series of relationships in which parts of the code are designed to take into account other parts of the code.

The Mediated City

The city has long been the subject of literature, painting, photography, film, and music. These modes of media production weave tales of its opportunities and dangers, capture its glorious skylines with high-resolution visuals, depict the complexities of the urban fabric, and record the urban experience. Moving away from the physical city, the media city demonstrates the forms the city takes when it transcends architectural definitions. Our

representations of space extend beyond the streets into the many forms that have mediated space textually, graphically, and sonically. Our captivation with cities should not be surprising. They are vast systems of people, buildings, infrastructure, and relationships. The city is inscribed with the tale of human changes; its form is the result of social, cultural, political, and personal dynamics. With each medium—each form of creative output—we remediate our representation of city space. Consider the city as presented in Raymond Chandler's delicately textured prose:

> *When I got home I mixed a stiff one and stood by the open window in the living room and sipped it and listened to the groundswell of the traffic on Laurel Canyon Boulevard and looked at the glare of the big angry city hanging over the shoulder of the hills through which the boulevard had been cut. Far off, the banshee wail of police or fire sirens rose and fell, never for very long completely silent. Twenty-four hours a day somebody is running, somebody else is trying to catch him. Out there in the night of a thousand cries people were dying, being maimed, cut by flying glass, crushed against steering wheels or under heavy tires.*[46]

The description is inherently spatial, brought to life with representational details of the city as it moves. The variety of mediated urban examples illustrates the capacity for the city to be expressed differently. Photographer Jacob Riis captured images of the poor living conditions in New York City tenements to provoke social reform. In **MEAN STREETS**, film director Martin Scorsese's penchant for long-takes fixed the image of urban places in a narrative of crime and friendship. Situated deep inside "The Intestine of Leviathan," French novelist Victor Hugo impassionedly detailed the Parisian sewers through which **LES MISERABLE**'s Jean Valjean made his escape. And the formative experiences of the lyrical artists in public sphere of the city, according to music historian Murray Forman, are why "themes of space and place are profoundly important in hip-hop."[47] So, not only do the Wu-Tang Clan rap about street life in "The City," the song opens with the sounds of car traffic followed by gunshots.

Chandler, Riis, Scorsese, Hugo, and the Wu-Tang Clan are all depicting real cities whose roads we can drive, whose air we can smell, and for whose temperament we can create metaphors. And yet, because they are mediated, the words and images are not actual cities but rather imaginaries. Cultural historian Norman Klein employs the term imaginaries in the urban context in *The History of Forgetting*.[48] He traces the term from its use by Lacan and Althusser to Hegel's conception of "the capacity to see in a thing what it is not."[49] Urban studies scholars Sallie Westwood and John Williams too use the term imaginaries to describe the subject of their edited collection on cities. Examples of imaginaries include "literary productions, notions of urban myth, memory and nostalgia in the city and its environs, or to the sociological imagination re-cast within the changing realm of new technologies and forms of communication."[50] Imaginaries are wrapped up in the non-physicality of the urban process. Media scholar James Donald asks, "why reduce the reality of cities to their thinginess, or their thinginess to a question of bricks and mortar?"[51] Instead, he suggests the city is "an abstraction, which claims to identify what, if anything is common to all cities.[52] The coherence between history, geography, institutions, social relations, politics, and communication can be maintained if we "treat the category of *the city* as a representation."[53] Donald is among a number of city thinkers who have taken this approach to the complexities of spatiality in mediated form. He points to literary theorist Ihab Hassan, who refers to the immaterial city that has "in-formed [*sic*] history from the start, moulding human space and time ever since time and space moulded themselves to the wagging tongue."[54] The imaginary city is a series of metonymic images and fleeting events.[55] But though it is imagined, it is real in its own ways.

We say "the city" to refer to characteristics shared between our conceptions of cities. With "the city" we can speak generically of Los Angeles and Minneapolis in one breath to discuss patterns of building and living. The city is crowded. The city has all the best restaurants. The city is where we expect to find corporate headquarters. These patterns are set in opposition and proximity to other forms too; it is not uncommon to hear someone

from the suburbs speak of "going into the city for the day." But at the same time, "the city" usually refers to *this* city. James Donald opens *Imagining the Modern City* with a collection of written works that situate cities in place and time. Even the same city is given different treatment, be it "Dickens's rendering of London on a foggy November afternoon" or "Virginia Woolf's London on a June morning."[56] They're both the same London, and yet entirely different.

So we have "a city," "the city," and "this city." It is a place with skyscrapers, a place in which we can hail a cab after stumbling out of a bar, or a place we can reject when considering where to raise our children. The city is something real. But it's also an *imagined environment*.[57] As James Donald writes:

> *"The city in our actual experience is at the same time an actually existing physical environment, and a city in a novel, a film, a photograph, a city seen on television, a city in a comic strip, a city in a pie chart, and so-on."*[58]

Each medium has its own way of portraying the city and exists *simultaneously* as other instantiations. In the city, our real experiences "are caught in networks of dense metaphorical meanings," syncopated and punctuated by an accumulation of images and signs.[59] An Atlanta native can fill in the blanks when reading **THE WALKING DEAD** and, in turn, the reader's imagination triggers thoughts of zombie's roaming the streets while driving through the southern city's downtown. The city also has been reconstructed in the facades of theme parks: Disney's Hollywood Studios apes the glamorous Sunset Boulevard of 1940s Los Angeles as its entrance, while recreating a movie-set version of New York City that looks as if it belongs on a studio backlot. Hollywood and New York City are again recreated alongside a miniature San Francisco at nearby Universal Studios Florida, and bite-sized versions of French, Italian, and Mexican cities dot the World Showcase at Walt Disney's Epcot. Not only do the theme parks create representations of cities within their gates, as I describe in a later chapter, they function like cities as well. They are bustling metropolises of tourists on the streets and workers in buildings with a complex infrastructural network

hidden behind their sets and under their walkways. And, much like the videogame city, most of the activity of the theme park city is directed and guided by designers' hands.

Researching Videogame Cities

Answering the question of what a city is in videogames involves three interrelated actions: close playing, unit analysis, and synthesis through emplotment. Out of necessity, it is a *multidisciplinary* interpretation of an object comprised of tangled connections. Lefebvre warns against the compulsion toward creating an interdisciplinary methodology that too often makes concessions when applying X as a lens to Y. Instead, he implores we study the urban on its own terms. The same should be said for videogame cities, which should not be assessed based on how well or poorly they portray real cities. Videogame cities are made up of elements of many things from many fields and are best studied as relationships. A study of the city, wrote Lefebvre, is a matter of philosophical inquiry:

> *"In truth, the city as emergence, language, meditation comes to theoretical light by means of the philosopher and philosophy. The oeuvre of the city continues and is focused in the work of philosophers, who gather opinions and viewpoints, various oeuvres, and think them simultaneously and collect differences into a totality: urban places in the cosmos, times and rhythms of the city and that of the world (and inversely)."*[60]

Soja too explicates the primacy of developing an object-first method of study when he comments that "never before have so many scholars from so many different fields been involved with interpreting what they study using a spatial perspective."[61] Spatiality, he implores, "must take precedence in writing the city, in making sense of globalization and other complexities of the contemporary world."[62] My goal, in undertaking this research, is to identify the theoretical material required to understand the city. My perspective emerges from the triads of relationships posed by spatial thinkers like Lefebvre, Soja, and Lynch. Ideas do not just oscillate on a spectrum; they float in viscous goo. Lefebvre presents a triad for understanding space: representations of space (understanding of the dynamics of objects

in the physical and non-physical realms), spatial practice (that which we put in the physical world and interact with), and representational space (the experience and understanding of physical space). Lynch's formulation from *The Image of the City* is a spatial triad related to the question of imaging the city: identity (distinction from other things), structure (spatial or pattern relationships), and meaning (practical or emotional). Soja poses a Thirdspace of real-and-imagined qualities that emerge from physical Firstspace and conceptual Secondspace. My trialectic framework—the constitutional, representational, and experiential—echoes these formulations.

Rather than study the space of videogames broadly as it relates to theories of space (like the work of Walz, Nitsche, McGregor, etc.), I have chosen to focus on a small subset of games grouped topically. This is actually unusual for game studies, whose works typically have other entry points. Few game studies scholars have approached a subject that appears in a variety of videogames to compare and contrast how they are portrayed through the medium. Though a relatively popular form of analysis in film and television, the "representations of" genre of writing has yet to gain footholds in game studies. A few examples of it include Paolo Pedercini's study of procedural representations of sex,[63] Ian Bogost's discussion of holiday cheer,[64] Mark Sample's expose on torture and interrogation,[65] and Carrie Andersen's comparative analysis of games containing John F. Kennedy's assassination.[66]

My analysis comes from the perspective of a player thinking about design. As the player, I cannot say anything definitive about the designers' intentions nor can I say anything about other players' experiences, which certainly vary from my own. This work is a matter of interpretation that has been informed by years of studying videogames set in the city and while immersing myself in the scholarship of games, media studies, and urban studies. This kind of work is what Stuart Hall refers to as a "long preliminary soak" in which scholars immerse themselves in their subject of study in order to know which questions to ask and

which conclusions can be drawn.[67] In this process I was able to choose the games I most wanted to write about based on the similarities and differences between them.

Videogame cities take many forms. The city provides a backdrop in the side-scrolling beat-'em-up **URBAN CHAMPION** (Nintendo R&D1, 1986), a dynamic system to be explored in **SIMCITY** (Maxis, 1989), and a network of streets and cars for embarking on criminal activity in **GRAND THEFT AUTO III** (DMA Design, 2001). I have narrowed the scope of my research to focus primarily on 3D polygonal game cities of the past twenty years. In order to arrive at this point, I have also researched historical and technological perspectives that demonstrate how depictions of cities have changed over time.

The term *close playing*—the game equivalent of a close reading—has been used to describe engaging with a game on multiple levels.[68] It means a deep familiarization with a game or games. It's not enough to just point to a game as an example of a topic. The game studies scholar should know a game just as they know the work of a theory. They should be able to recall specific moments as well as synthesize broader impressions. The ETC Press series *Well Played* lays out this mission:

> *"This book is full of in-depth close readings of video games that parse out the various meanings to be found in the experience of playing a game. Contributors analyze sequences in a game in detail in order to illustrate and interpret how the various components of a game can come together to create fulfilling a playing experience unique to this medium."*[69]

Close reading media texts is a methodology dating back to the "New Criticism" of the 1930s and 1940s that is "a celebration of the many ways in which a text can create meaning" while at the same time "laying bare the faults and inconsistencies of a media artifact."[70] The practice has shifted from interpreting the content of the work itself to understanding the "text in context," and thus I use the lens of urban design and urban studies to inform my readings. Game scholars Bizzocchi and Tanenbaum identify some of the unique challenges associated with close reading games, which include the many

approaches taken to finish them, their often expansive and time consuming scope, and their difficulty.[71]

By close playing these games I am able identify both recurring themes and unique applications, and playing helps abate interpretive mistakes. There is no one correct interpretation of these cities, of course, but arguments can be based on incorrect information. City historian Spiro Kostof recalls an urban design seminar he participated in which Sienna, Italy was admired for its spontaneous and organic form as shown by its map. But, taking into account the historic forces of Sienna, Kostof elucidates that the growth was actually coerced from "one of the most highly regimented designs of medieval urbanism."[72] Looking at the map of Sienna produced a "false reading" because it did not reveal influencing factors. "We 'read' form correctly only to the extent that we are familiar with the precise cultural conditions that generated it," warns Kostof.[73] What must we know about the videogame city to perform an educated analysis?

Emplotment

The final question I have to resolve is how can I simultaneously write about broad themes and little moments. Our experience of something is both how we perceive the world when we're engaged with it and what we take away from it. This grows in complexity when the experience of the game is informed by outside factors: the experience (or lack of-) cities in our physical world, our encounters with the city in media, and our familiarity with the videogame city as its own form. Ultimately, I have decided to examine how unit analysis constructs a *narrative-like synthesis* based on emplotment. Simply put, there are operations occurring in the constitutional and representational orders of the city that become related to each other and understood through moments of play rather than through a totalizing examination. Each of these concepts are explained in the following paragraphs.

Media scholar Ian Bogost wrote *Unit Operations* as a way of conducting comparative media analysis, especially between computational works. It allows us to look at things both

discretely and in relation to each other and it is especially useful when considering representations across games.

> *"Unit analysis is the name I suggest for the general practice of criticism through the discovery and exposition of unit operations at work in one or many source texts. Unit analysis is especially useful in comparative criticism across legacy and computational media, and it should prove equally useful in criticism of literature, film, or other artistic works. Each medium carries particular expressive potential, but unit analysis can help the critic uncover the discrete meaning-making in texts of all kinds."*[74]

Bogost applies unit operations to Baudelaire's Paris. Walter Benjamin's assessment of Baudelaire identifies the tools Baudelaire used to "resist alienation through his contemporary poetry." Bogost suggests *unit analysis* could be substituted for Benjamin's term *motif*, which was used to describe "scaffolding for modern experience" through techniques like flanerie, self-isolation, and resistance.[75] The flaneur was a literary figure in 19th century Paris who capriciously wandered the streets of the city, both observing its sights and helping to form its image. Bogost writes, "the flaneur's role is fundamentally a configurative one" and because this is "fundamentally a passage through a space, it bears much similarity to the configurative structure of procedural texts."[76] The ergodic nature of digital texts, according to media theorist Espen Aarseth, resembles the flaneur's many choices and whims. But just as Bogost points out the forgotten characteristic of the flaneur as one who Benjamin describes as becoming "accomplice [to the crowd] even as he dissociates himself from them," playing games is not all wandering. Choosing paths, points of interest, places to loiter, and things to engage with, "the work of the flaneur is constructed of these individual unit operations."[77] As Bogost notes, the city is configured as the flaneur traverses its streets and the city configures itself based on the emergent behavior of others in the space.[78] Unlike the flaneur, however, we typically traverse the city with purpose—exiting the train station, choosing whether to wait for the bus or walk, stopping for a morning coffee. Videogame players too

move with purpose. Unit operations, by necessity, tend toward predictable configurations, so performing unit analyses means identifying patterns and difference.

Unit operations, with their impersonal description, hardly seem equipped to tackle the phenomenon of experience. But Bogost assures "like some poststructuralist strategies, unit analysis is especially concerned with response; the crux of this experience takes place where unit operations meet subjectivity, in the crisis of simulation fever."[79] My goal is to identify the components of the city that are able to produce experience, not necessarily the resulting experience. Bogost observes that "[v]ideogames can be played as individual linear experiences that might in turn be describable in narrative form, but such analysis is useful only as an exemplar for the broader abstract meaning the text's unit operations elucidate."[80] As such, I purposely have avoided a story-structured explanation of my games, and instead will describe the unit operations that produce experience through a similar technique from other disciples that construct a narrative-like synthesis of *emplotment*.

Emplotment, a term used by historicist Hayden White in 1973 to describe the ways in which history gets written from multiple contexts, was used as a postmodern tool to belie the "truth" of any historical interpretation.[81] Soon after, narrative theorist Paul Ricoeur adopted the term to complicate the interpretation of stories and texts more broadly. As postmodern cultural geography developed, scholars raised questions about how anything concrete could be said about a place in the face of the multitude of interpretations that could emerge from any perspective. Humanistic geographer J. Nicholas Entrikin, who drew inspiration from White and Ricoeur, brought emplotment to his discipline. The "holistic quality of place," he wrote, "is seen as a feature of the way in which we view the world rather than as a feature of the world"[82] "The problem facing the student of place becomes one of determining the appropriate criteria of selection and significance for 'constructing' such wholes."[83] How can a geographer possibly embody all the viewpoints that would define a place? Citing cultural geographer David Lowenthal, Entrikin writes, "the geographer's concern for an accurate description *of* the world may not coincide with the goals of the

individual agent concerned with acting *in* the world" (emphasis added).[84] Transcendental realists—philosophers that believe as long as one knows one's mind, one can address issues of subjectivity—have argued that in closed systems it is possible to express the relations of basic structures and causal mechanisms of the world.[85] In this kind of system, the transcendentalist realist would permit "an ontology of structures and mechanisms that gives objects 'causal powers'."[86] Entrikin poses emplotment as an alternative to plot, which according to Ricoeur "comprehends in one intelligible whole, circumstances, goals, interactions and unintended results."[87] "With emplotment," however, "it is explicit in the narrative that it comes from a point of view. Its relative centeredness allows it to incorporate elements of both objective and subjective reality without collapsing this basic polarity between the two views."[88] In effect, it allows us to describe experience by connecting moments of play rather than tracing a linear path through a game, embracing subjectivity. Placeness, then, is formed by an amalgam of temporally and spatially disjointed unit operations of game mechanics, modes of interaction, forms of representation, and the experience of interacting with a space that accounts for the way people play games. Because videogames can take a long time to complete, and players exhibit a range of motivations of playing, it is unlikely that they will remember exactly what happened during the course of the game. Instead, it is more likely that they will have a series of memories of activities they participated in, characters they met, sights they saw, glitches experienced, and songs they heard. In particular, how and where they traveled significantly impacts what kind of city they remember. One player may have chosen to do numerous optional missions, another may have followed the most direct path from the story's start to conclusion, while another may forego missions completely in favor of open-ended exploration. Yet, all of these different experiences can be reconciled through a narrative-like synthesis that pieces together memories to form an image of the city. In this dissertation I explain how the game cities I traveled through produce experiences.

Contributions to the Field

My contributions relate to three disciplines: media studies, game studies, and urban studies. Broadly, it is connected to media studies as a comparative work. Using architecture and urban studies as the common language, it puts videogames in dialogue with other media to see how they address the subject of the city. And, in particular, it brings the medium of the videogame (and its unique ergodic and spatial qualities) into the domain of urban imaginaries that has long been dominated by non-computational media. This dissertation enters into growing corpus of scholarship that has put videogames and architecture into dialogue with one other (especially the edited collection *Space, Time, Play*) with the hope being that more game designers will seek out new perspectives on the city while architects and urban designers may might see what the construction of videogame space has to offer for alternative notions on how the city works. Regarding architecture and urban studies, I further the argument that our conception of space is as much about experience as it is about its physical components, and assert that videogames are adept at demonstrating this. In relation to videogame studies as a discipline, I am furthering a subject-based area of inquiry that examines one artifact (albeit complex) as it is portrayed across multiple games. It looks at the expressive capability of the medium of videogames and asks how cities have been consciously and unconsciously encoded into playable worlds. I also assert the usefulness of the concept of emplotment, and its description as a narrative-like synthesis, for characterizing the experience of a game that takes into account the act of playing, embodiment, and any narrative elements that may be present.

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CHAPTER 2:
VIDEOGAME CITIES

This chapter describes different ways city space in games has been organized, typical activities the player is involved with in these spaces, and how these cities have developed into the type of worlds frequently created for modern commercial games. Videogames, which are able to put the player in unfamiliar roles, provide for a variety of perspectives of urban experience. While most games, like other works of media about the city, focus on human characters, we can just as easily play as a Golden Retriever in the animal-populated **TOKYO JUNGLE** (Crispy's, 2012) or a municipal transit in **BUS-SIMULATOR 2012** (TML Studios, 2011). Rarely are the characters realistic people, because even when the player embodies a human they are tasked with extraordinary activities: stealing cars, shoot-outs in the streets, climbing buildings with acrobatic flare, hopping between roof-tops, and 50-50 skateboard grinding the lip of a second story ledge. Previously unseen properties of urban structure and function are revealed through these unfamiliar

Historical Perspectives

The tactic I pose for a historical perspective on the videogame city is part chronological and part design-oriented. It takes as its orienting marker the release of **GRAND THEFT AUTO III** for the PlayStation 2 in 2001 because of its commercial success and widespread popularity. **GRAND THEFT AUTO III** did not revolutionize videogame cities, but it set a standard that commercial developers sought to emulate in hopes of their own financial success. And, because the majority of the games cordoned off for this research bear resemblance to **GRAND THEFT AUTO III**, it is worth investigating what game cities looked like before and after that point to understand the conventions that had influenced its design. This chronological question is also, in part, a technological question. In what ways have rapidly-changing platforms provided for new urban forms and, on the flipside, what has not

changed? Significantly, the transition from 2D to 3D games produced certain ways of interacting with the city and thus affected the experience of the city.

Of particular importance to the videogame cities collected here are the development of algorithmic infrastructures (the subject of Chapter 5) that animate the city. Representational infrastructures uses familiar urban systems like power lines and telephone poles as props or pieces of architecture, while operational infrastructures are available to players to interact with. For example, pedestrians movement routines and traffic algorithms populate the city with moving residents. As players interact with buses, police, public parks, roads and subway tunnels, they begin to understand how public infrastructures establish their relationship to a broader whole. And, as I will show, it is not just modern game technology that affords algorithmic infrastructure. Thus, I take a game design mechanics and systems oriented perspective centered on the kinds of activities in the game city that takes into consideration forms of embodiment.

Figure 1: Grand Theft Auto III (DMA Design, 2001)

The city is an astoundingly popular setting for games and it is worth considering how we arrived at this point. The success of **GRAND THEFT AUTO III** (DMA Design, 2001) ushered in a new era of urban settings as commercial developers attempted to recreate the game's financial and critical successes in their own living polygonal urban worlds. In its

ubiquity, the city has become videogames' twenty-first century dungeon. While the living worlds of **SHENMUE** (SEGA-AM2, 1999) and **GRAND THEFT AUTO III** once wowed, the "clockwork city" or "sandbox" world has become commonplace. The city, as a kind of platform for gameplay to take place, afford a vast number of design opportunities. Building a game city may seem as simple as laying out streets, filling it in with a variety of buildings and open areas, adding a few landmarks, and then populating it with things to do, but this alone produces an inadequate experience of how a city operates and what it feels like to be in it. For example, the close recreation of Manhattan in its street-for-street translation for **TRUE CRIME: NEW YORK CITY** (Luxoflux Corp., 2005) has the visual appearance of New York without all the animating characteristics that make that city unique. It has traffic and criminals and skyscrapers and honest cops with nothing left to lose, but in its attempt to re-create the architecture of the city, its animated world is unable to match that level of detail. Rebuilding the city in any mediated form requires taking into account the living space of the city as much as its bricks and mortar.[1] It is like playing in a map rather than a photograph. Edge cases like these—polygonal worlds that look but don't feel alive—help distinguish between the city as mere "background" and videogame cities that function like real cities.

Early History

The early history of game cities is composed primarily of depictions of cities as backdrops that draw on its thematic associations. The city is a setting that prompts—as media scholar Edward Dimendberg writes of film noir—tales of crime, corruption, violence, unrestrained desire, and the externalizations of the anxiety associated with these conflicts. The urban crime games of the 1980s certainly have a connection to that genre elsewhere. Early videogame cities functioned more as backdrops than environments. Its most important property was its genre trope of crime and violence. **URBAN CHAMPION** (Nintendo R&D1, 1986) put the player in the shoes of a brawler who walks along a street, engaging in a series of one-on-one fist fights while the buildings' residents drop objects from above to show their disapproval. This style of game—known as a beat-'em-up or brawler—often found

itself on the city street for this reason. **DOUBLE DRAGON** (Technos Japan Corp., 1987), **TEENAGE MUTANT NINJA TURTLES: THE ARCADE GAME** (Konami, 1989), and **STREETS OF RAGE** (SEGA-AM7, 1992) all have stages that take place in the open public space of the city street because that's where violence is imagined to occur—thugs have taken over the street and only fists can restore order. The width of the city street also lends itself to the side-scrolling action of these games, allowing players to move along the plane of perspective into and toward the screen. By evoking the city, early games were able to capitalize on popular urban themes: crime and conflict, exploration and surprise, power struggles, and the geometry of urban architecture that has most commonly supported pixelated pugilism and projectiles.

Grand Theft Antecedents

The games that fit into the design lineage from which **GRAND THEFT AUTO** (DMA Design, 1997) emerges are those that begin to consider what it means to circulate through the environment. Games like **N.Y.C.: THE BIG APPLE** (Synsoft Software, 1984) and **TURBO ESPRIT** (Durell Software, 1986) turned the car-centric nature of the city into a way of experiencing its flows.[2] And, it's worth noting that these driving cities were not just used as racecourses, as was most typical of vehicle games. **N.Y.C.: THE BIG APPLE**, for example, is a game about being a tourist and those who have played the top-down **GRAND THEFT AUTO** games will recognize a familiar structure in this Commodore 64 and Atari 8-bit game. Drive around a city from a birds-eye perspective looking for a target location, at which point the player exits their vehicle to go on a mission. As a tourist, this means seeking out Manhattan landmarks like Central Park or the Empire State Building and completing mini-games inside of them. But of course, like all tourists, the player must face a set of restraints in pursuit of their comprehensive visit to the city.

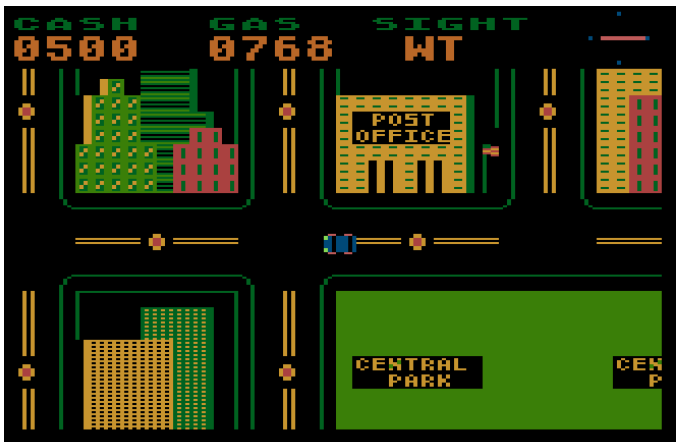

Figure 2: The Big Apple (Synsoft Software, 1984)

Figure 3: Turbo Espirit (Durell Software, 1986)

TURBO ESPRIT also provides an early example of the open-world structure of city games. The player is placed behind the wheel of a car on the streets of an unnamed city to track down and destroy drug-smuggling automobiles. The game's interface takes the viewpoint from inside of the vehicle, with dashboard and steering wheel taking up half of the screen. The player is then also represented on the streets as a car that is differently colored from the others (above: red) with both directions of traffic on screen at the same time. Using the controller they can switch into any of the lanes to out-maneuver traffic to chase down the criminals. Along the bottom of the screen the current facing cardinal direction is displayed in text, helping the player maintain orientation. The streets are lined with narrow sidewalks, some versions of the game even contain pedestrians, and a solid wall of buildings are set just beyond that. The player can even pull up a map of the city that indicates where the target is located, though they must be careful to only glance at it during

safe moments because the game does not pause while it occludes the view of the streets. **N.Y.C.: THE BIG APPLE** and **TURBO ESPRIT**, whose legacy is apparent in today's games but whose names have long been forgotten, illustrate how early videogame developers thought about the city not just as a setting, but as the subject of the game itself.

Other games made use of similar design decisions, both in structure and action. In **DICK TRACY** (Realtime Associates, Inc., 1990), the player also drives around a city from a top-down perspective to find the buildings that contain the side-scrolling portions of the game. And the top-down car-smashing activities at the center of the arcade game **APB** (Atari 1987) are also reminiscent of the mechanics of games like **GRAND THEFT AUTO**. **RIVER CITY RANSOM** (Technos Japan, 1989), in contrast to the many linear, level-based beat-'em-ups around it, experimented with the player circulating through the city, returning to the same places multiple times. Its "town" districts were populated with the kinds of shops one expects to see in the city, though whose wares were tied to the game's character progression system. Non-combative pedestrians even fill the spaces of River City to provide contrast to the hostile outlying areas.

Grand Theft Auto

GRAND THEFT AUTO III (DMA Design, 2001) marked the moment that brought the living city to popular consciousness, being the first major commercial success in North America that supported open exploration, a variety of activities, and the illusion of a living polygonal city. It occurred at a moment in which a confluence of events—technological, economic, and cultural—made it seem like nothing else. Of course, the basis of its design had emerged through years of other DMA Design games. Developer David Jones had pitched an idea to DMA Design (which later became Rockstar North) company founders Sam and Dan Houser as a game that would take its cues from **DEATH RACE** (Exidy, 1976). Jones's **RACE-N-CHASE** was to be a game about driving around a city in a variety of cars, taking illicit contracts, building notoriety, and mowing down pedestrians indiscriminately. The project's name was changed from the innocuous **RACE-N-CHASE** to the more

evocative **GRAND THEFT AUTO** and was released for the PC in 1997. Progressing through Liberty City, Vice City, and San Andreas, the player took on a variety of challenges on foot and in automobiles, usually causing destruction and killing. In order for the game to work, it needed to be filled with obstacles like pedestrians, traffic, and police forces and supported by a communication system in the form of pagers and payphones that could distribute missions to the player. The **GRAND THEFT AUTO** games were not the only DMA Design project during the period of the late 90s. The studio gained experience building open-worlds in the polygonal third-person action game **BODY HARVEST** (1998) for the Nintendo 64. Significantly, in this game, DMA Design tackled the issue of non-linear open-world navigation by working on an onscreen mini-map that would become a hallmark of open-world games. Jones would later go on to founding a company called Realtime Worlds, which produced **CRACKDOWN** and the ill-fated city-based MMORPG **ALL POINTS BULLETIN.**

In its contemporary moment, **GRAND THEFT AUTO III** seemed revolutionary. It was an expansive polygonal space that players could freely roam. It was irreverently violent, spent part of its budget on licensed music for in-game radio stations, and used notable voice actors like Michael Madsen, Frank Vincent, Michael Rappaport, and Joe Pantoliano. In demonstrated how the "living" open-world city could be a commercially viable platform for a variety of gameplay. But rather than a discrete point on a timeline marking a shift in games, **GRAND THEFT AUTO III** can be viewed as a sign of emerging trends. Many of the games whose release dates we mark on a timeline around it were in development concurrently—first to market rarely indicates first to innovate. As such, a discussion of the history of these kinds of games remains useful as context. This history demonstrates the shift from the city as setting to the creation of polygonal worlds of spatially situated embodiments and algorithmic infrastructures that animate the urban landscape with familiar processes.

Figure 4: Midnight Club Street Racing (Angel Studios, 2000)

Figure 5: Shenmue (Sega AM2, 1999)

While Rockstar North was working on **GRAND THEFT AUTO III**, the future Rockstar San Diego (who was then the independent Angel Studio), first tried their hand at open world racing with **MIDTOWN MADNESS** (1999). Unlike the traditional track and circuit-based racing games, players were free to drive around expansive spaces of a 3D Chicago populated with traffic, pedestrians, and even changing weather conditions. Angel Studios would then go on to design the open-world city game **MIDNIGHT CLUB STREET RACING** (2000) in conjunction with Rockstar. They built cities based on Los Angeles, Paris, and Tokyo, using landmarks from each in abstractions of these real spaces. **DRIVER** (Reflections Interactive, 1999), which would also become a long-running series, adapted real cities for a variety of vehicular activities in a game that was described by videogame review website GameSpot's editor Ryan MacDonald as "a 3D **GRAND THEFT AUTO** except you're never on foot."[3] Had **SHENMUE** (Sega AM2, 1999) and the Dreamcast been greater commercial successes in North America, the landscape of games may have seen imitators of the highly ambitious living clockwork-city of Yokosuka, Japan. While there aren't so-called **SHENMUE**-clones like there are "**GTA**-clones," its open world activities made a lasting mark on game cities.

After GTA III

Urban activities and infrastructures have had a long development period. Following **GRAND THEFT AUTO III**, plenty of other games have come to contribute to what is thought of as the polygonal open-world city. **THE GETAWAY** (SCEE Studio SOHO, 2002) is notable for two reasons. Because the game was in development concurrently with **GRAND THEFT AUTO III** and **GRAND THEFT AUTO: VICE CITY** (Rockstar North, 2002), it could not draw on established design patterns, instead attempting to build its own detailed urban space. Thus, released on the heels of **GTA III** it took a different approach by recreating a sizeable portion of central London, differentiating it from Liberty City's appropriation and translation of New York City. It also attempted a cinematic portrayal of the player in a linear story through an open space by reducing the number of non-diegetic UI elements. Blinking turn signals on the car are used for navigation instead of a mini-map, health is portrayed by the player's limp, and the game relies heavily on prescribed paths such that the player does not get lost. **MAFIA** (Illusion Softworks, 2002) is notable for taking the open-world city structure and implementing rigid laws similar to our own: don't run stop signs, don't draw weapons in public, and do not get caught engaging in criminal activity without severe penalty. These strict rules were interpreted as a downside by many who preferred the lack of consequences afforded by **GRAND THEFT AUTO III**'s permissible mayhem. **TRUE CRIME: STREETS OF L.A.** (Luxoflux, 2003) expanded the scope of the re-created city by mapping their space to a huge street-for-street swath of Los Angeles. **GRAND THEFT AUTO: SAN ANDREAS** (Rockstar North, 2004) increased the scope of open world games significantly. It also introduced an explicit territory control system that modeled gang occupation. The first major city on the most recent generation of game console hardware, **SAINTS ROW** (Volition, 2006) for the Xbox 360 was notable because it added a GPS to the mini map, assisting the infrastructures of traversal. **ASSASSIN'S CREED** (Ubisoft Montreal, 2007) was a significant deviation from the major commercial game cities since **GRAND THEFT AUTO III**. Not only did it recreate historical spaces, it adapted the acrobatic body

of Ubisoft's previous **PRINCE OF PERSIA** games to traverse the city, and introduced an unparalleled density of

seemingly intelligent pedestrians at the heart of how the player moved through the space. In **GRAND THEFT AUTO IV** (Rockstar North, 2008), Rockstar updated Liberty City with increased scale, density, and variation, though it can be critiqued as more refinement than innovation. Perhaps more unique is how they used this their existing city as a platform for the game expansions of "**THE LOST AND DAMNED**" (2009) and "**THE BALLAD OF GAY TONY**" (2010). "**THE LOST AND DAMNED"** is particularly interesting because not only did it place the player in the role of a new "biker gang" character whose story starts on the opposite side of Liberty City, the use of the motorcycle as the prescribed vehicle gave the city a different feel.

Thus far, bipedal and automotive movement have dominated the discussion of the game city, but an entire branch of urban perspectives emerged from even more fantastic forms of travel (which is expanded upon in the Motilities section of Chapter 6). While **SPIDER-MAN** (Neversoft, 2000) for the PlayStation and Dreamcast could best be described as a platformer atop skyscrapers, **SPIDER-MAN 2** (Treyarch, 2004) introduced the whole of the city as navigable geometry to play on. This necessitated systems that determined web-swinging surfaces in the world and the city had to be designed to accommodate a superhero's body. Other more recent games, such as **INFAMOUS** (Sucker Punch, 2009), **PROTOTYPE** (Radical Entertainment, 2009), **BATMAN ARKHAM CITY** (Rocksteady, 2011), and **GRAVITY RUSH** (Project Siren, 2012) are all reminiscent of the Spider-Man formula. **GRAVITY RUSH**, in particular, is one of the most recent games that plays with the city's geometry from different acrobatic angles. The heroin Kat shifts the direction of gravity at will, standing on the side of a building as if it were the ground to move through the city and battle invading monsters. So, unless you are a base jumper in a flying squirrel suit, videogames will likely be the only way to experience these kinds of aerobatic feats.

Lastly, it is worth mentioning the games that reside on the periphery and outside of this work. I have chosen to focus on cities with *spaces of flows*, separating these from games

Figure 6: Swinging through your town like your friendly neighborhood Spider-Man

where the city is a "backdrop" to highlight the differences in the kinds of spaces these two concepts produce. Additionally, while most of my examples involve modern cities where most of the action takes place, it's significant to recognize games like those of the **ELDER SCROLLS** series whose cities, while not the dominant site of activity, have a high density of citizens with which to interact. The absence of another game from my discussion of cities may stand out to some readings: **BIOSHOCK** (2K Boston, 2007). One of the most evocative settings in the past decade, the grand underwater city of Rapture is a lavishly detailed narrative environment. However, as I contend in Chapter 8, Rapture is an edge case that tests the definition of the videogame city.

From Dungeons to Cities

The urban landscape has become the modern equivalent of the videogame dungeon, emerging from a tradition of agnostic space. The historical influence of tabletop role-playing games introduced the dungeon into videogame spaces. Labyrinths of obstacles, monsters, surprises, twists and turns, and adventure captured the excitement of exploring an unknown space. In the mid-1970s, Gary Gygax and Dave Arneson's **DUNGEONS & DRAGONS** pervaded the culture of university programmers who had access to powerful computers.[4]

Not only was the source material familiar, but the table-top game's structure could be readily modeled by computers: "In many ways, **D&D** was already like a computer program, overlaid with a dungeon setting […] it progressed on an *if-then* model that was familiar to programmers."[5] Some games were set entirely in dungeons, while others used dungeons as destinations. In **DRAGON QUEST** (Chunsoft, 1986), players sought out dungeons that were represented by a single tile on the world map. In instances like this, dungeons allowed games to have spaces that were bigger on the inside than they appeared on the outside. And while dungeons were most often the purview of role-playing games (whose genre conventions were influenced by fantasy literature like **LORD OF THE RINGS**) the dungeon became a generalized structure of games. Water may not be dripping from musty stone walls in **DOOM** (id Software, 1993), but the demon-filled multicursural maze of the marine base on Phobos functions in the same way. When the dungeon-like walls of **WOLFENSTEIN 3D** (id Software, 1992)—whose simple geometry and texture were a product of the hardware technology—developed into the open spaces of games like **QUAKE** (id Software, 1996), the contents of the dungeon oozed out of the confines of narrow corridors into the world at large. As the result of increasing technological capacity, it became possible to build expansive polygonal exterior spaces. And while the geometry of buildings is easy to render, the dynamics that animate the city require both processing power and creativity.

Building 3D Cities

Making the transition from 2-dimensional pixels to 3-dimensional polygons, the videogame city had a distinct technological advantage. In much the same way that caves and dungeons are easy to render in the polygonal abstract (simple geometries, short draw distances, plain textures), cities too lend themselves to these properties. Recalling **TURBO ESPRIT** (Durell Software, 1986), which constructed a rasterized version of these shapes to provide the illusion of depth and perspective, the geometries of the city can be abstracted into grey rectangular boxes pasted with windows and doors that line black orthogonal streets like walls. This corridor, decorated with the occasional touch of urban symbols conveys city

space reasonably well. This structure is derived from the embodiment as a vehicle that takes a certain perspective by being immersed in the city. The **KILLING CLOUD** (Vektor Grafix, 1991) renders another take on the city's geometry. Patrolling San Francisco in a futuristic hoverbike, the visual perspective treats the city not like a corridor of tall buildings, but a vast landscape of distinct structures. Flying above the poisonous clouds that hang over the city, San Francisco's tall buildings are rendered like wooden blocks standing on a play mat.

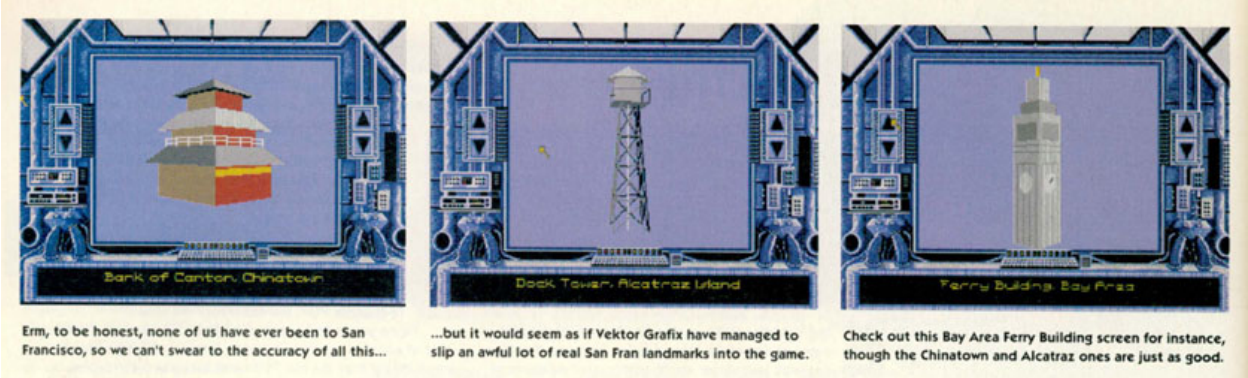

Figure 7: "The Killing Cloud" Reviewed by Tim Smith in *Amiga Power* 1 (May 1991)

Viewed from above, this depiction makes sense because only certain buildings would be tall enough to be visible as they poke through the gaseous clouds. But descending below the fog, the more street-level view of the city distributes buildings in a similar manner. The density of San Francisco is abstracted into one or two buildings per city block. A few are modeled to look like their real world counterparts—the Ferry buildings, the Transamerica Pyramid, the Hyatt Regency on Embarcadero—but most are placeholders that stand in for a type of building: simple rectangular skyscrapers downtown, Monopoly-piece shaped houses in residential areas. In a reviews of the game, David Upchurch wrote: "The polygon graphics aren't quite the fastest I've ever seen, but they're more than fast enough, and the ability to set detail level means it's up to you whether you'd rather sight-see or get on with the job at hand."[6] And reviewer Kati Hamza commented that "What's most impressive about **KILLING CLOUD** is the genuine feel of being in an authentic city. Streets, trees, bridges and 2,429 buildings create a huge environment to suss out—you can have a lot of fun just sightseeing while you fly around."[7] Even early representations of the videogame city in 3D

were able to impart a sense of specificity and placeness. Considering these strategies for rendering city buildings in the face of technological limitations, it is unsurprising that the corridors that had dominated first-person shooting games like **WOLFENSTIEN 3-D** and **DOOM** would produce a city such as the one used for the opening stages of **DUKE NUKEM 3D** (3D Realms, 1996).

Figure 8: Going to the "cinema" in Duke Nukem 3D

DUKE NUKEM 3D contained a simple urban space that demonstrated a minimal number of components required to make a space feel like a city. In the first episode called "L.A. Meltdown," grey streets form the major through path in the space, but lead to dead ends (function more like courtyard between buildings rather than roads). These are lined with beige sidewalks that abut with tall brownish-grey walls that disappear high above the player's field of view. In the distance, this area of the city is surrounded by other buildings as represented by dark silhouettes, dotted with small yellow squares implying windows illuminated from the inside. The streets are empty of the city's residents, however. The only other characters in the space are the militant aliens and hulking warthog police force that serve as enemies, and yet in a subtle way these pig-like "police" in "L.A.R.D." blue uniforms imply a (if now absent) governing infrastructure. Representationally, the notable buildings in the space lean on urban caricatures of the Red Light District: the "cinema" is an adult movie

theater that connects to a strip club that is adjacent to a bar and pool hall next to a bookstore with its own selection of adult magazines.

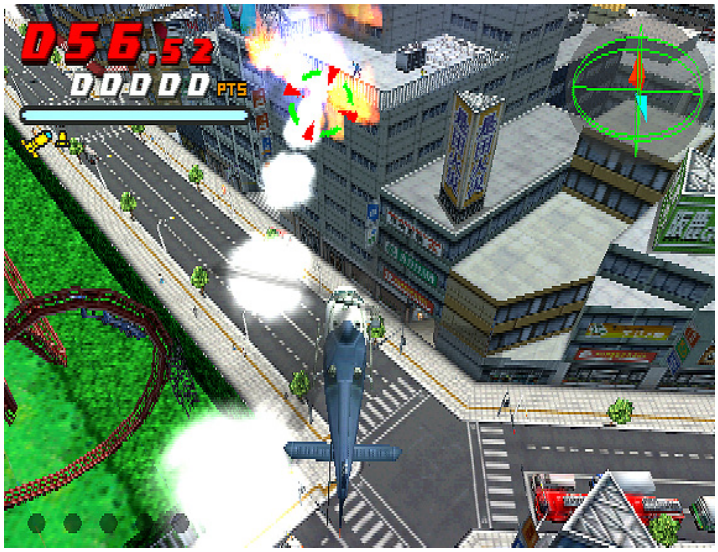

Figure 9: The Renderware engine in City Crisis (Syscom, 2000)

It is also worth noting the technology that made the polygonal **GRAND THEFT AUTO** games and so many others possible. Criterion Software's Renderware was a cross-platform 3D graphics rendering engine that became hugely successful for use with the PlayStation 2, which was notoriously difficult to program. Early games like Criterion's own **BURNOUT** (Criterion Software, 2001) and **CITY CRISIS** (Syscom, 2000) established the viability of Renderware for building polygonal cities. Renderware could produce buildings, cars, humans, and AI, and **GTA III** explored the depth of this important game engine. So while **GRAND THEFT AUTO III**'s technological accomplishments were remarkable for a console videogame, these antecedents see it in a trajectory that was also being explored elsewhere, its greatest accomplishment, as I see it, was its combination of a city animated with urban processes that served as a platform for a variety activities—fighting, shooting, destroying, maneuvering, and managing.

A few years after **SIMCITY 2000**'s release, Maxis explored the idea of inhabiting the cities players had built. **SIMCOPTER** (1996) took user created maps and made them navigable as 3D environments. And, subsequently, **STREETS OF SIMCITY** (Maxis 1997)

made use of the established urban shapes of **SIMCITY 2000** in a similar way. It had players racing and crashing in polygonal streets a full year before DMA Design had even released the first **GRAND THEFT AUTO** to PC. Whereas the simulations of Maxis games dealt in automated worlds, **CITY BUS SIMULATOR 2010** (TML-Studios, 2009) actually puts the player in the literal role of driving the city's infrastructure. So, although the games I have looked in this dissertation don't belong to the genre of games known as "sim," they use the same kind of computational thinking about system dynamics to animate their worlds.

There has been a historical shift in the production of cities for games that has tended toward the inclusion of processes that help animate the videogame city, lending to its illusion as a believable world. Regardless of their scale, we think of cities as busy places. Their streets and public places are populated by both familiar faces and strangers going about their business. And, in order to support this population, citizens and their governments construct infrastructures that maintain these daily activities. Invisible flows of electricity, sewage, telephone conversations run parallel to the visible flows of automobile traffic, people popping into sandwich shops, and garbage trucks. As such, these processes have come to define the image of the videogame city as much as skyscrapers and subway stations. Over time, as the depiction of these processes have become increasingly detailed. Consider, for example, the characters that pace the streets of River City in **RIVER CITY RANSOM** (Technos Japan, 1989) for the NES. These characters can walk aimlessly, back and forth on obvious paths, without undergoing much scrutiny because that was an accepted convention for non-player character behavior. Because River City itself was also abstracted into prototypical components, and because of the expected limitations of the era, this behavior does not seem abnormal. However, with changes in design and technology, we now have expectations that polygonal pedestrian models should be animated by their own artificial intelligence behaviors. The same is true for vehicle movement. Even more so than the pedestrians that move along the sidewalk, automobile alogithms needs to be designed such

that cars do not smash into each other in the street as they turn across intersections or come to a stop.

There are numerous possible reasons for the rising predominance of the modern open-world city form. For starters, it has proven to be a commercially viable design strategy attractive to consumers. In tandem with this strategy have come suites of development tools and vernacular construction practices that aid in the production of urban worlds. The city's arrangement allows for a variety of genres of games filled with the varied activities that take place in the city. And it has built-in cultural narratives and expectations that can be exploited for a game's premise. Thus, over time, the city of big-budget commercial videogames has tended toward increased density and elaborate algorithmic infrastructures that govern its animated character.

Typology/Topography

Most typologies fall into the trap of trying to simplify what are actually complex blends. The typology provided here is actually a series of typologies based on some of the defining characteristics of videogame cities. The goal of such a typology is to present to the reader a shorthand for imagining cities with which they are unfamiliar. Borrowing the term typography, it illustrates the shape of the terrain in the city of games to show how recognizable qualities influence how the game is experienced. Because the city is experienced through movement and activity, these categories take the form of "the city as" a way of organizing space, and "the city for" performing different actions that emerge out of genre and mechanical conventions.

The City As

Typography can help explain how a city is being presented as a space with which to interact. This type of spatial analysis has been performed before in other game contexts. Common spatial structures in games, writes game scholar Michael Nitsche, specify the "practical shape the architectural references take in the world of video game space."[8] These

consist of tracks and rails that guide players down a single path, labyrinths and mazes that collapse space through twisting passages, and arenas that constrain movement toward activity within a single space. Likewise, game scholar Georgia Leigh McGregor divided uses of "screen-mediated games" into seven patterns: challenge spaces of interaction with the built environment, contested spaces of conflicts between entities, nodal spaces that represent familiar built forms, codified spaces of non-spatial elements, creation spaces of game construction, and backdrops in which there is no interaction between player and game space.[9] Both of these typologies of spatial patterns are useful for considering game spaces more broadly, but neither seems adequate for describing the significant differences between videogame city spaces. Thus, I propose four categories (that are not necessarily mutually exclusive) that have emerged from the expansive corpus of games I've looked at in my research. **Backdrops** exist to locate a game in a particular context usually associated with some narrative premise, **scenes** present nodal locations that are spatially disconnected, **contiguous navigable environments** render connected segments of the city, and **circulating navigable environments** allow both the player and other actors/processes to repeat their paths through open space.

Figure 10: Urban Champion (Nintendo R&D1, 1986)

Backdrop

In its most basic incarnation, the city functions as a backdrop. It is not something that is interacted with, but rather exists rhetorically to carry meanings of "cityness" into the game that uses it. **STREETS OF RAGE** (Sega, 1991) takes place in the city because that is where gangs resided in the cultural imagination of the 1980s. The architectural features of the city-as-backdrop, while often secondary to the other implications of the city setting, contribute in meaningful ways to how the games are played. Streets in cities, for example, are often flat and straight. This establishes clear boundaries for where the action can take place and which areas are off-limits to the player. The beat-'em-up genre often renders the city as street and sidewalk in the foreground with the facades of buildings forming a wall in the background. In **URBAN CHAMPION** (Nintendo R&D1, 1986) the sidewalk/street is a flat surface that permits horizontal movement across a single axis. The player can walk left or right (and much of the walking is done automatically when the game advances the player's character to the next sequence). This expanded, as the genre progressed, into vertical up-down movement that occurs from the perspective of standing on one side of the street looking across, such that the characters seem to be moving between the foreground and background (despite often not scaling the size of any of the character sprites on screen). **BATMAN RETURNS** (Malibu, 1993) for the Sega CD took the initial beat-'em-up formula used for the previous Batman games and added to them "platforming"—a term that has come to mean the challenge of jumping between surfaces (platforms) that float (or are fixed) above the ground. In 2-dimensional games, architectural features of buildings like ledges and balconies are treated as solid platforms the player can stand on. The player, as Batman, traverses some of the levels by jumping or using the grappling gun to swing between these surfaces. In games of this sort, interaction with the architectural features of the city is more immediate, but the processes of the city remain dormant. Of course, it is not only 2D cities that use the city as merely a backdrop. Examples like **THE BOUNCER** (Squaresoft, 2000),

STATE OF EMERGENCY (VIS Entertainment, 2002), and **INDIGO PROPHECY** (Quantic Dream, 2005) primarily use the city as a narrative conceit rather than a spatial experience.

Scenes

Like a movie, which cuts from scene to scene without traversing the space in between, games do not have to build spatially contiguous worlds to represent cities. The point-and-click adventure classic **BLADE RUNNER** (Westwood Studios, 1999), set in the same 2019 depiction of Los Angeles as the film, is a highly detailed polygonal dystopian city. In point-and-click adventure games, the player spends a significant amount of time in a constrained space (sometimes one room, sometimes a few connected areas) finding clues and solving puzzles. The camera is typically fixed in place, which means that 3D objects need only be rendered from a single perspective. Given the technological restraints of the time and the conventions of this genre, Westwood Studios was able to render evocative environments because they were only concerned with building small scenes from this world. The game's protagonist Ray McCoy can travel between different areas of Los Angeles by selecting them on a map located inside of the player's flying car. An animated movie clip serves as the transition between spaces, depicting the car traveling, but the player has no control over this movement. Other examples of this structure being used in the city are **TEX MURPHY: MEAN STREETS** (Access Software, 1989), **TEX MURPHY: UNDER A KILLING MOON** (Access Software, 1994), and **GRIM FANDANGO** (LucasArts, 1999). The player experiences an impressive depiction of city scenes, but it functions like a stage set rather than a city of circulating flows.

Figure 11: Shin Megami Tensei: Devil Survivor (Atlus, 2009)

Another game that uses "scenes" of the city is the Nintendo DS game **SHIN MEGAMI TENSEI: DEVIL SURVIVOR** (Atlus, 2009). A turn-based role-playing game set in Tokyo in the midst of a looming disaster, the game features a group of high school students trying to discern the nature of the crisis, which turns out to be an invasion of monsters from another plane. The game is structured such that Tokyo is represented as a series of notable districts and landmarks that the player can choose from in a menu. On the top screen of the Nintendo DS hardware the game shows a street map of Tokyo, while on the bottom screen a menu of places appears in a column on the left. Selecting one of these locations brings up a thumbnail image of the area and a list of actions that can be taken there. If the player chooses Shibuya, for example, they may be given the option to speak with one of their teammates about what is going on in that area. Or, they can select "look around" from the menu to display a single still backdrop of the area and uses text to describe what is happening there. If there is a battle present, the player is taken to a representation of that area rendered from an isometric perspective, overlaid with a grid. These gridded battlefields tend to look the same from location to location, but the thumbnail, backdrop, and slight

differences in the battlefield mise-en-scene contribute to a sense of distinct areas of Tokyo. Narratively and mythologically, it is important that the game takes place in Tokyo, but mechanically as the framework for a strategy combat game, this version of the city presented as a menu of scenes serves the basic purpose of moving the player around the space.

Contiguous Navigable Environment

The contiguous portrayal of the city involves a series of levels (distinct segmentations of gameplay space) inferred as joined together in a logical way. **MAX PAYNE** provides a good example of this kind of structure. The game is a linear experience of New York City—players are not free to roam the space, nor do they have any reason to revisit places they have been. Most of the levels in **MAX PAYNE** are based in interior spaces and exteriors are primarily close-quarters and used for transitioning between buildings. The player will travel through a seedy motel, a dive bar, a noisy club, a liquor store and pawn shop, and other locations familiar to the film genres of noir and crime drama from which **MAX PAYNE** draws its inspiration. As a level-based game, **MAX PAYNE** relies heavily on a labyrinth design. While there are some logic-maze puzzles, the player is typically moving forward from one end of the stage to the next, winding through long corridors. This necessitates buildings and areas that are connected to each other over extended expanses of space that, in some cases, produced unrealistic geometries and building volumes. It is not uncommon for the interior of a building to be significantly larger than piece of architecture that is supposed to contain it. Other examples of similar arrangements include games like post-apocalyptic **THE LAST OF US** (Naughty Dog, 2013) and the dystopian future-Paris of **REMEMBER ME** (Dontnod, 2013).

Figure 12: Remember Me (Dontnod, 2013)

Another form of the contiguous navigable environment is illustrated by **MIRROR'S EDGE**. In this parkour game, the athletic body is capable of making connections between architectural structures that would otherwise seem disconnected. The player has access to these connections by way of a special interface that reveals important objects in the environment as bright colors. Most of the buildings in the dystopic sterile cityscape of **MIRROR'S EDGE** are alabaster white, which causes the colored elements to stand-out among the relatively dense environments of rooftops and building interiors. Red is referred to as "runner's vision" and highlights critical objects to interact with: railings, jump pads, cables, staircases, doors. In an interview, **MIRROR'S EDGE**'s art director Johannes Soderqvist explained other color choices the team made for producing a navigable city: "Orange and yellow is often used to subconsciously lead the player or simply because it looks great in direct sunlight. Blue is used when color is wanted but without leading the player. Blue also looks good in shadows. Green is practically banned from exteriors and is only used in interiors."[10] A combination of wayfinding and aesthetic choices help link the different areas of the city together through the hyper-athletic body of Faith, the dissident message courier.

Circulating Navigable Environment

Though some of the games I have looked at extensively for this research fall under the previous category of contiguous navigable space, most are circulating navigable

environments. The open world city falls under the structure of game worlds that involve circulating through space. In these game spaces, though there may be a predefined structure for where the player is supposed to go and be, and they are not confined to a path through the environment. Perhaps the greatest difference between contiguous and circulating cities is the ability (and often the requirement) of revisiting places. And not only do players repeat paths across the city, other objects circulate as well to maintain the illusion of a "living" urban world. Traffic, pedestrians, and information move about the world in the *spaces of flows* that urban theorist Manuel Castells describes as composed of "purposeful, repetitive, programmable sequences of exchange and interaction between physically disjointed positions held by social actors."[11] Simply put, the significance of these spaces is not just their physical arrangement, but how interrelated processes enable spatial relationships. The typical conception of the circulating navigable city is best illustrated by the 3D **GRAND THEFT AUTO** games, which not only present a city open for exploration, but also expect that the player, traffic, police, and pedestrians will retrace their steps through paths (even if not exactly). However, my examination of videogame history has shown, this same pattern was used years before in 2D games like **N.Y.C. THE BIG APPLE** (Synapse Software, 1983) and **RIVER CITY RANSOM** (Technos Japan, 1989).

Alternatively, **THE DARKNESS** (Starbreeze, 2007) presents a circulating navigable environment that demonstrates how a smaller, more constrained space can still support repeated paths and show how others actors flow through the space. **THE DARKNESS** is limited to a handful of small neighborhoods in Lower Manhattan composed of surface streets, building interiors, and two subway stations. The player moves back and forth between these stations and see how they change over time. Other characters in the game circulate through these spaces as well, so they player encounters new people, new information, and new objectives as the game progresses. **THE DARKNESS** is a rare example of a city with limited scope that still allows players to circulate through the space.

Of course, there are crossover elements of these different urban presentations. **L.A. NOIRE**, for example, is a game that has a highly detailed representation of Los Angeles in the 1940s that can be explored as a circulating space like other open-world cities, but is also primarily composed of individual scenes in constrained locations. The navigable city serves as a means to an end: it contributes to the illusion of a historical period, it mimics the agency noir detectives commonly have over urban traversal, and spatialized events can convey the passage of time. The totality of the city is not always available for circulation in many games, so another frequent hybrid pattern that can be seen in examples like **DEUS EX** and **DISHONORED** (Arkane Studios, 2012) is the player circulating through contained areas for extended periods of time before proceeding to new game levels.

The four different game topographies are not intended to classify games neatly, but are instead supposed to help us think about what it means to move through an participate in the space of these worlds. How we participate, then, is answered by looking at how the city is used.

The City For

Thus far in its history, the city in games has lent itself to certain verbs. Verbs, as a term used in game design, are the words that describe what it is the player is primarily doing. While they do not specify how or why a player is doing something, they are useful because they represent actions (and thus interactions between the player with controller in hand and the game world). Every game consists of multiple verbs and the nuances of each implementation make games unique. Shooting, for example, can take many forms based on the player's visual perspective, the kinds of weapons available, and what precisely the player is shooting at. And, as illustrated at the end of this section, games can ask the player to do very specific things in the city, such as when **GRAND THEFT AUTO V** (Rockstar North, 2013) has the player take on the role of a paparazzi, chasing a Hollywood starlet through the streets of Los Santos. While each verb is unique, it is possible to identify a broad set of verbs that illustrate how the city has been most commonly used in commercial games.

Fighting

"2 A.M. is no time to be alone on the subway... and you're about to find out why," threatens the tagline to **RENEGADE** (Taito, 1986). The text on the box continues: "They've got clubs, chains, and blades. And it's three against one, but they've picked the wrong one. The streets are a mess and it's time to do a little street cleaning. They started it. You've gotta finish it."

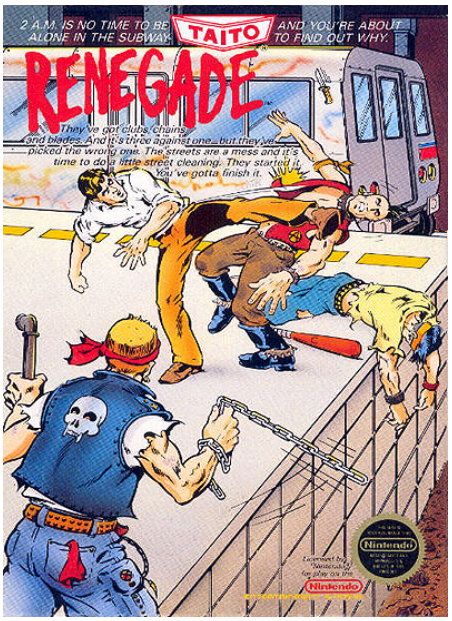

Figure 13: NES Box Art for Renegade (Taito, 1986)

RENEGADE is one of the earliest examples of the beat-'em-up genre that long dominated depictions of the city. The foundational games it draws its fighting mechanics from—titles such as **KUNG FU MASTER** (Irem Corp./ Data East, 1984) and **URBAN CHAMPION** (Nintendo R&D1, 1986)—established horizontal movement along an axis while punching and kicking your way through enemies, but it was **RENEGADE** that expanded the movement of the character to a four-directional plane, allowing the player to effectively choose which enemies to engage with at a given time. Interestingly, when originally released in Japanese arcades, the game was not about beating up the kinds of street gangs associated with American culture in the 1970s and 80s, but rather about fighting off gangs of school bullies who had been harassing the player-character's friend Hiroshi.[12] When

the game was westernized, the Japanese narrative was shed in favor of a re-skinning largely influenced by the film **THE WARRIORS** (1979). But in addition to the fighting mechanics, what persisted through successive games of the beat-'em-up genre was the city as the site of fisticuffs. From the mid-1980s to the mid-1990s the beat-'em-up genre remained popular in both arcades and for home consoles, and while the settings for these games branched into other areas, the urban setting remained dominant in games like **DOUBLE DRAGON**, **STREETS OF RAGE**, **TEENAGE MUTANT NINJA TURTLES: THE ARCADE GAME**, **FINAL FIGHT**, and **BATMAN RETURNS**.

While the beat-'em-up as a cohesive genre has fallen out of favor, a few examples of genre persisted in the transition to 3D polygonal games. **FIGHTING FORCE** (Core Design, 1997), **URBAN CHAOS** (Mucky Foot, 1999), **THE BOUNCER** (Dream Factory, 2001), and the **YAKUZA** series all followed the same basic fighting structure as their predecessors. More significantly, however, "fighting," as a design verb, has continued to be a component in a variety of other game genres as a way of participating in the city even when it's not the primary action. Superheroes like Batman and Spider-Man engage in hand-to-hand combat with urban thugs, Altaïr engages in swordfights with city guards and Templars in **ASSASSIN'S CREED**, and even Trevor Phillips can choose to wield fists instead of guns in **GRAND THEFT AUTO V**. The significance of fighting as a verb comes not only from the narrative implications of the city as a place of violence, but how fighting is an extension of the body, and thus a product of embodiment. Fighting implies a kind of able body—a mobile individual with the athleticism and dexterity that demonstrates muscular strength. It is enacted in games primarily as the collision between two points like fists to the face or a dagger slashing an arm. Human bodies, of course, are not the only entities that can fight. In **TOKYO JUNGLE** (PlayStation C.A.M.P, 2012), the various animals roaming the streets of post-apocalyptic Japan can attack each other and fight to the death. In **POST APOCALYPTIC MAYHEM** (Steel Monkeys, 2011), cars smash into each other as they race around the city.

These embodiments permit different kinds of access to space and, as a result, take advantage of different urban portrayals.

Shooting

The shooting city, at first blush, seems similar to the fighting city: violent themes persist and it remains oriented toward individuals in combat. However, guns are a different extension of the body, capable of inflicting harm at greater distances with nearly instantaneous speed. Early games structured like beat-'em-ups but using firearms often treated the bullet as a slow moving projectile. **ROBOCOP** (Data East, 1988) is structured like **KUNG FU**—it is a straight line traversing the city, and Robocop needs to shoot at enemies approaching from the right side of the screen before they shoot at him. In **NARC** (Eugene Jarvis / George Petro, 1988), for example, the player can outrun and dodge bullets being fired at them from the drug-addled junkies on the streets. **THE PUNISHER** (Krome Studios Melbourne, 1990) shifts the player's perspective to be looking into the screen over the Punisher's shoulder as the level scrolls automatically from right to left. The player has some control over the horizontal motion of the character, but is primarily tasked with moving the targeting reticle around the screen to shoot the enemies. Each level is just a horizontal slice of the city, but by taking on this perspective, enemies can use the depths of the space to hide behind objects and buildings.

Figure 14: RoboCop (Data East, 1988)

Modern shooting in games has evolved out of both these kinds of "projectile combat" games and the first-person shooter, and there are many ways of designing shooting for games. A frantically played first-person shooter, a cover-based third-person shooter, and a slow, plodding sniping game can use the city in different ways. But, as a general interaction paradigm, shooting in the city promotes certain uses of the space. Because of the instantaneous and lethal consequences of being shot, the architectural features of the city serve as barriers, hiding places, and protection. Of course, most videogames do not treat bullets with the severity of real gun violence. Players can "soak up" damage, a term used for the unrealistic depiction of bullets as harmful but not immediately lethal. Thus, a shoot-out in **GRAND THEFT AUTO IV**, **MAFIA**, or **INFAMOUS**, can move between confined/protected alleyways into open/vulnerable street intersections to change the nature of aggressive/defensive strategy.

Destroying

The act of razing the city to a pile of smoldering waste is not a frequent form of interaction, but it has been the center of a number of notable games. **CRUSH, CRUMBLE AND CHOMP!** (Epyx, 1981) began the trend of monster-movie style videogames with Goshilla, Kraken, Arachnis, The Glob, Mechismo, and Mantra terrorizing cities from a top-down map perspective of the United States on the Atari 8-bit, Apple][, and TRS-80. The King-Kong-like, Godzilla-like Lizzie, and werewolf Ralph start in the competitive building smashing game **RAMPAGE** (Bally Midway, 1986). Translating city-destroying mechanics into a different genre, **KING OF THE MONSTERS** (SNK Playmore, 1991) pits giant Japanese kaiju monsters against one in another in a fighting-game that takes place atop destructible city whose buildings will be destroyed during the course of a fight. And players could customize their own monsters in **EAT THEM!** (FluffyLogic, 2010) which revived the long-dormant city-smashing genre with 1950s' sci-fi flair. As is the case with monster and disaster movies, there is some sort of reassuring pleasure in seeing the possibilities of catastrophe bound to the screen.[13] Whether in literature, film, television, or games, we compulsively

enact disasters in different medium as evidenced by architectural scholar Max Page's quip: "every generation has had its own reasons for destroying New York."[14]

Maneuvering

Because a city puts objects in close proximity, the simple act of negotiating a body in relation to the built environment is way of using the city. Athletic activities like free-running and skateboarding, driving, and flying treat the architecture of the city as obstacle course and playground. Shooting games rely on architecture's protection from projectiles and moving through this space becomes highly tactical. Whether around, over, on, or through, the maneuvering body's traversal of the city transforms our everyday experiences by amplifying the player's abilities. The broadness of maneuvering as a category is indicative of movement's central role in videogame city space. Not only is the city a daily obstacle for a significant percentage of the world's population, we like to imagine alternative ways of coping with it. Be it strategic, forceful, or playful, maneuvering cuts through the typical boundaries of space. "The instinct to climb up to some high place," writes Christopher Alexander, "from which you can look down and survey your world, seems to be a fundamental human instinct."[15] Climbing has steadily become a frequent mode of interacting with the city, developing its own patterns of use across genres. Though there were ways to get on top of buildings in **GRAND THEFT AUTO III** and **VICE CITY**, it wasn't until **SAN ANDREAS** that a climbing mechanic was introduced that allowed the player to climb over walls, get on top of roofs, and access otherwise off-limits areas. The inclusion of this climbing mechanic was incorporated into new kinds of missions that involved stealth and allowed players to escape on foot more easily.

Figure 15: Marc Ecko's Getting Up: Contents Under Pressure (Atari, 2006)

Climbing became a primary mechanic in **MARC ECKO'S GETTING UP: CONTENTS UNDER PRESSURE** (Atari, 2006) so that Trane could reach difficult spots for spray-painting tags in the city of New Radius. Because climbing is seen as abnormal behavior, the player in **GETTING UP** had to ensure they were only climbing where police and security cameras could not see them. These same sorts of suspicious attitudes appeared in the **ASSASSIN'S CREED** series and **THE SABOTEUR**, in which anybody who is climbing or running on rooftops is obviously up to no good.

Climbing mechanics typically involve architectural features that have the equivalent of rock-climbing grapple points. Ledges, columns, beams, pipes, windowsills, door lintels, ornamentation, and other objects are arranged in a way that the player needs to think about where their character can reach and choose a path to proceed along. How much the player needs to pay attention to the climbing helps shape the city's use of vertical services. Climbing up the sides of buildings in **GETTING UP** was intentionally challenging and slow as a way of pitting Trane's more realistic body against a depiction of a city with similar scale to those in our physical world. This body can be compared to games in which the player is inhumanly athletic and capable of moving deftly between buildings. And these can even be contrasted with the effortless climbing of Alex Mercer in **INFAMOUS**, Spider-Man in **SPIDER-MAN 2**,

and the main character in **SAINTS ROW 4** (Volition, 2013), who can all effectively run up the sides of buildings without worrying about grapple points.

Flying (and relatedly other aerial forms such as soaring and gliding) focus our attention on the empty volume of the city. In **BATMAN: ARKHAM CITY** (Rocksteady, 2012), Batman has an array of tools that enable him to move aerially, hurling himself between ground and sky, between buildings, and across rooftops. The player can glide in the air using Batman's cape, launch the Grapnel Gun at a grappling point, and slingshot off this spot to boost his speed in that direction. The city's buildings are arranged so that this maneuver—combined with interaction mechanics that help the player target grappling points—can be used to keep Batman soaring through the air almost indefinitely. If we think of the established premises of the Batman franchise, this figuration of Arkham City makes sense. Thugs from warring gang factions patrol the streets, so surprising them from above is to Batman's advantage. Gliding through the air, Batman moves stealthily, and from the enemy's perspective it seems that he can be anywhere in the city at any given moment. As a player, the mobility enabled by flying is important because Batman is responsible for managing conflict all over the city and they need to be able to quickly travel to any location. Flying also takes advantage of the vertical space of the city to allow doors, puzzles, hidden objects, and quests to be distributed throughout the volume of space.

Driving, as another form of maneuvering, is used in numerous game design paradigms and is one of the earliest uses of the polygonal city. Embodying the player in a car has one major advantage when it comes to designing a game world: there is little expectation that the vehicle and the buildings will be interacting with each other. Buildings are usually the thing being passed by, which means their visual fidelity won't come under close scrutiny. And, like buildings, the geometry of cars is easier to render than the human body. So, in **STREETS OF SIMCITY** (Maxis Software, 1997) the computational technology derived from **SIMCITY 2000** (Maxis Software, 1993) that depicts both buildings and cars makes it logical for the streets to be populated with cars instead of people. Driving games can use the simple

geometry of buildings combined with the graphical detail to communicate their unique cityness. In **DRIVER** (Reflections Interactive, 1999), though functionally there's little difference between stages, the player can imagine the types of crime unique to Miami, Los Angeles, and San Francisco. In **BURNOUT** (Criterion Games, 2001), the tight roads and bends of the city encourage exciting racing. It's one thing to drive an established racecourse at high speeds, but it's quite another to zip through streets that are normally governed by strict laws without worrying about wrecking a car into the side of a building. **CRAZY TAXI** (Hitmaker, 2000) takes advantage of the notion that cities are chaotic places to drive around and that only cab drivers are brazen enough to navigate them with speed. By way of contrast, then, **CITY BUS SIMULATOR** is about making deliberate maneuvers to negotiate traffic obstacles and a prescribed driving course. The vehicular body takes on numerous forms, from games in which it is the primary embodiment to those in which it is but one piece of a multi-motile array of traversal options.

Exploring

The city as a place for exploring can be broadly categorized in two forms of gameplay: system-motivated exploration and self-motivated exploration. In system-motivated exploration, players are explicitly rewarded for venturing off the prescribed path. Most generally, the promise of new sights and new experiences can be a motivating factor in completing the activities required by the game.Weapon pick-ups in **GRAND THEFT AUTO: CHINATOWN WARS** (Rockstar Leeds, 2009), landmark tokens in **ULTIMATE SPIDER-MAN**, stunt jump locations in **SAINTS ROW 2** (Volition, 2008), and diary pages in **ASSASSSIN'S CREED III: LIBERATION** (Ubisoft Sofia, 2012) all encourage the player to seek out new perspectives; the nooks and crannies of the city that otherwise might go unnoticed. While most games use the city for goal-oriented gameplay, there is pleasure to be derived from freely exploring a space. Often, this involves eschewing the directed activity to play outside of the goal structure of games. This is best evidenced by the numerous videos on YouTube of players seeking out places in videogame cities that they are not meant to

accessed. Cars driving on rooftops in **BURNOUT PARADISE**,[16] characters glitching into the geometry below the streets of Hong Kong in **SLEEPING DOGS**,[17] and players jumping down to the streets in the otherwise roof-base **MIRROR'S EDGE**[18] show players testing the boundaries of both the game's visually represented space as well as the code that governs their behavior.

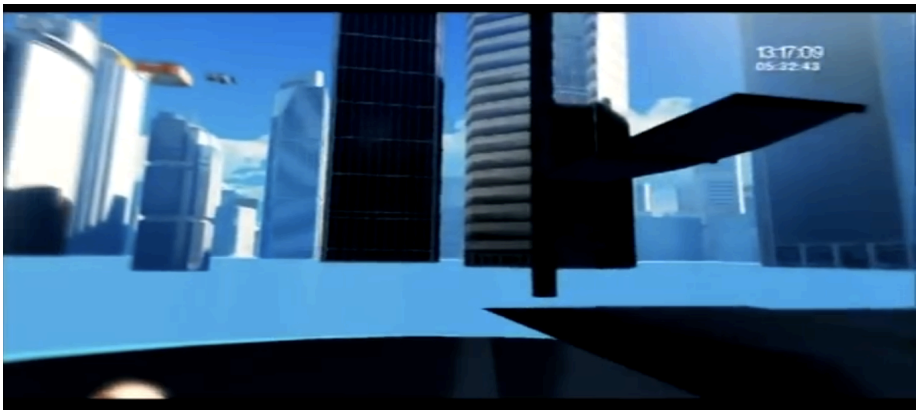

Figure 16: Ground glitches in Mirror's Edge (DICE, 2008)

Until **GRAND THEFT AUTO V**, players of the **GTA** series were typically prevented from accessing geographic areas that had been reserved for later in the game. Narrative justifications explained restrictions on movement in the 3D **GRAND THEFT AUTO** games. The bridges in **GTA III** were closed by the police hoping to prevent an escaped convict from fleeing the Staunton Island, while in **GRAND THEFT AUTO: VICE CITY** they were closed because of the threat of a hurricane. These physical boundaries, combined with the player's inability to swim, meant the only way to cross over to the games' other islands were through glitches. Enterprising players were able to exploit bugs, but it's likely that most people found themselves bound to the prescribed starting location. Because **GRAND THEFT AUTO: SAN ANDREAS** added a swimming mechanic and because flying vehicles could be accessed from the beginning of the game, bridges alone were not enough to keep players from seeking out the game's other two cities. Instead, the boundaries around Los Santos were protected by an invisible barrier, couched in the narrative as the player's character CJ being under surveillance by the police who have threatened him not to leave town. Crossing the artificial boundary would cause the player to receive a four-star warning

level (which causes the police to chase and try to kill you and launches a fighter jet strike on any player who might be airborne). However, with the right strategy and skills it was possible for players to survive in these areas as they explored the games' forbidden lands.

Regardless of whether it is self- or system- motivated, exploration can be pleasurable. Not only is it new sights and new stories, spaces open up new possibilities. When seeking out new parts of the city, we might ask how it will become transformed during the course of play. A staircase that looks like any other in **GRAND THEFT AUTO IV** may eventually become entangled in a chase sequence, or a landmark building such as the Ultor Dome arena in **SAINTS ROW: THE THIRD** takes on new meaning after the player takes part of in lucha libre wrestling match mid-game. The city presents surprises, obstacles, and encounters and by exploring videogame cities we begin to understand what makes each unique.

Managing

There is also the use of the city that remains mostly outside the scope of my dissertation because it often lies outside the embodiment of an actor situated in the world. **SIMCITY** (Maxis, 1989), **CITIES IN MOTION** (Colossal Order, 2011), and **CITIES XL** (Monte Cristo, 2009) take as their subject the complexities of urban planning and city management. The games of the **SIMCITY** and **CITIES XL** series propose a model for how cities operate and render that model computationally. **SIMCITY**'s lead designer Wil Wright notably took engineer and system scientist Jay Wright Forrester's 1969 book *Urban Dynamics*, as well as writings from Christopher Alexander and Witold Rybczynski, as his inspiration for **SIMCITY.**[19] Teleologically, these games value reason and efficiency. Their goals are similar: how do you construct a city in which residents are happy? Usually, the answer is by not taxing them too heavily and by ensuring it is easy for them to get around without going over the city's budget. Zoning districts, laying roads, implementing public works, these games allow players to "test theories and construct mental models of a hidden system."[20] Videogame scholar David Thomas observes that the pleasure of these games is not necessarily peoples' interest in the issues of city planning, but rather their curiosity for

tinkering with a familiar model. Thomas writes, "**SIMCITY**'s central deceit is that it simulates urban life. Its central pleasure is that it only simulates **SIMCITY**."[21] Simulation games in which the player is embodied as something in the space are rare, though if the current rising popularity of simulation games is any indication, it won't be long before we see a game like "Metropolitan Gas and Power Technician Simulator 2014."

Performing Everyday Activities

Fighting, shooting, destroying, maneuvering, exploring, and managing are just a few of the activities videogame cities get used for. These categories reflect broader trends in game design, especially with regard to graphical and resource management logics that dominate the operational logic of games.[22] Objects collide with other objects, the computer renders depictions of space, and numerical parameters must be balanced. These videogame affordances find parallels to urban activities, and the form of the city begins takes shape. However, there is a kind of mundane activity that takes our everyday interactions and adapts them into gameplay. These tasks are often the most interesting because they cause us to reflect on what it means to turn everyday activities into gameplay elements—even if they're often only "side" missions. Though not always specific to cities, these are activities we might expect to encounter in urban life. As a result, sometimes the mundane is elevated to exciting and sometimes it makes play seem like work.

Anybody who has owned a car knows what it's like to have to give somebody a ride. Be it home from the bar, a carpool to work, or just a quick jaunt downtown, we're often not driving only for ourselves. In videogame cities with cars, it's not uncommon to have to drive a passenger somewhere. Often, this time is spent with the player's character conversing with the passenger for the sake of narrative exposition. For example, when Tommy Vercetti drives Mercedes Cortez home from a party on her father's yacht in **GRAND THEFT AUTO: VICE CITY**, she reveals the rivalry between her father and upcoming drug kingpin Ricardo Diaz. And the passenger-conceit is used in **GRAND THEFT AUTO IV** to reveal a new space,

when the player is tasked with taking Playboy X back to his apartment, which happens to be on the previously inaccessible island of Algonquin.

Side missions in videogame cities can often be interpreted as errands in which the player is compelled to do something because the game requires it. Connor in **ASSASSIN'S CREED III** undertakes delivery missions around Boston that require him to collect specified items and bring them to a designated contact. **PROTOTYPE** even uses the phrase "Errand Boy" as one of its mission titles. Little jobs like these are common in videogame cities because they are not development resource intensive. Side mission types can reuse existing assets, can be distributed around the city without requiring specially built environments, and usually do not involve extensive voice acting or cinematically rendered "cut scenes." They can often even be procedurally generated based on a set of input parameters, such as when Batman detects a group of thugs harassing any of the unfortunate civilians stranded in Arkham City. Tasks in the city can range from simple to elaborate. In **TONY HAWK'S UNDERGROUND**, the player's trip to San Diego begins with mayor asking them to "clean up the streets" by using their skateboard to perform the wall-riding trick over stickers that have defaced city property. In **SHENMUE**, Ryo gets a job working at the docks in order to infiltrate a gang. And the life of the dock worker is even further explored in **GRAND THEFT AUTO V**, which has an entire sequence in which the player masquerades as a stevedore in order to steal a shipping container that has landed in the Port of Los Santos.

Another activity commonly found in cities is sight-seeing. This trope has been incorporated into games in different ways. For example, in **ULTIMATE SPIDER-MAN** there are objects in the environment called Landmark Tokens that the player can collect to unlock special features in the game. And the whole premise of the 1983 game **N.Y.C.: THE BIG APPLE** is that the player is a tourist visiting major landmarks of New York City. And the designation of "tourist" in the form of an Xbox achievement is given to players of **SAINTS ROW** who have traveled over 500 in-game miles in a vehicle. Touring to see landmarks can be contrasted with "acting like a tourist," such as when the player is asked to feed the sea

lions on the San Francisco pier from their skateboard. And the idea of the tourist is satirized in **SLEEPING DOGS** by a special tourist outfit the player's character can wear that serves only to increase the prices in Hong Kong's shops by 60%. Tourism, as an activity common to cities, extends to other descriptions of player behavior as well. So, though it is not the approach I take in my analysis, it is worth noting Kiri Miller's writings on how players themselves come to act as tourists of the gameworld.[23]

The possibilities of city-specific activities are seemingly endless, and they should serve as inspiration to designers to reconceive of the way videogame city space can be used. But in order to have a place for this activity to take place, we must first build the city. Having been through a history of the videogame city and its dominant activities we can turn in the next chapter to the foundational constitution of the city.

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CHAPTER 3:
CONSTITUTION

The constitutional order brings a collective structure into being, organizes society, and both separates people from one another while also joining them in a collective structure.[1] As described by Douglas Allen, the constitutional framework has four requirements. Boundaries are the "fundamental tectonic unit of the city" that separates and joins discrete identities into a collective whole.[2] Streets are the primary structural unit of the city and allow us to communicate and move.[3] They constitute the order within the collective whole. Allen notes that streets are not just avenues of movement, but are actually complex institutions with great social, political, and economic depth. Public places are where the people gather when engaged in disparate activities. By engaging publicly, people become aware of their role as citizens and their relation to others. Lastly, monuments (and other public buildings and memorials) play an important role in forging a bond with history, marking the past for the present, and establishing the collective identity of the populous.[4]

This constitutional framework is not about architectural form as much as it is about organizing concepts. It is relates individual and collective identities to fellowship and separation, spatializing processes of recognition. The city, as Lewis Mumford describes, is "a related collection of primary groups and purposive associations."[5] Most would not call a college campus a city, but it exhibits many of same characteristics. Students mingle on the quad, under the shadow of the hundred-year old building featured prominently on every promotional pamphlet. Faculty members encounter the staff that keeps the university running as they travel to their offices, exchanging morning pleasantries. Though their doors aren't locked, the buildings used for administration lie beyond a boundary demarcating usage. The range of activities occurring on a college campus can rival that of the city as a whole. Scientists, bookworms, cooks, number-crunchers, and artists go about their day. Similarly, Louisiana's New Orleans, Scorsese's **MEAN STREETS**, DICE's **MIRROR'S EDGE**, and Walt Disney's E.P.C.O.T. are all just representations of the ideas we believe form a city. But,

before addressing these non-traditional cities, it is still worth considering the traditional form that gave rise to our understanding of what a city is and should be.

Constitutional Elements of Videogame Cities

Streets

Streets are the most visible element of the city. Despite the fact that streets are an absence of the mass of buildings, they are positive spaces that we use and interact with in a way we do not most buildings. [6] Streets are spaces for traversal—whether on foot, by automobile, or flying through the air—and they support the kind action associated with motion. One cannot commit grand theft auto indoors. Because streets are so prominent in cities, it is understandable that many games that take place in the city are about traversal, chasing, and racing. The street can be used as an avenue for getting from one place to the next, it can function as the site of play itself, or, most commonly, both. Because so many games have the player spending time on the road getting from one place to the next, navigation becomes an important component of streets. Streets are also where most of the population who animate the game city reside. When playing a game in which you know you're the only human-controlled character in the city, it is important that it seems the city's other inhabitants are moving with purpose. Not only are the streets a public space, they serve the role of creating a Public of inhabitants (the significance of which is discussed further below). Streets are also sites of encounters, be they planned or surprise, friend or foe. Streets are recognized as public rights-of-way that permit passage and frame the rest of the city. So how do they get treated in games?

Steelport in **SAINTS ROW: THE THIRD** demonstrates how streets can be laid out to enable speedy traversal. The city is a tangled network of surface roads and highways, but driving from one location to another is a relatively quick trip. A straight, elevated freeway runs east to west and connects the southern tip of New Colvin with the center of Downtown, and then to the connecting point between Stanfield and Carver Island. The

major highways and instantly available vehicles reveal the mobility of Steelport. Players are given a number of motilities (methods of moving in the game) such as bipedal walking and running, a variety of automobiles and motorbikes, tanks, helicopters, a vertical landing and take-off (VTOL) jet, and a even hovercraft jet-bike. Vehicles can be stolen while on the streets with a simple press of a button or, having been stored in the garage of the player's "crib" (a home location that serves as a narrative and functional base for the player), vehicles can be instantly recalled through a menu. During the course of the game the player adds other characters' phone numbers to their cell phone and can have a variety of vehicles nearly-instantly delivered to their location anywhere in Steelport.

Figure 17: Streets of Steelport, Saints Row: The Third

While pedestrian and automotive movement are common to games of this open-world city genre of third-person action game, most do not grant access to fast forms of travel as early as does **SAINTS ROW: THE THIRD**. Consequently, because it is expected that the player is never more than a couple of minutes from any location, missions may be initiated anywhere via a cell phone call instructing the player to travel to the opposite side of the city. Not only are the streets populated with pedestrians and automobile traffic, they are also home to gang members and police forces on patrol. **SAINTS ROW: THE THIRD**'s premise as a game of powerful crime syndicates at war with each other, and their subsequent corporatization of drug running, prostitution, entertainment, and even public utilities paints a picture of a city in which anything can be subjected to private ownership. Gangs claim

territory and occupy areas of the city by patrolling the streets with guns. This occupation blurs the lines between public and private—while the space of the streets is not legally owned, it can be effectively possessed.

Streets are also arenas for other game actions. While **SAINTS ROW: THE THIRD** makes use of many interior building spaces for its central story missions, the streets are frequent sites of activity. The affordances of streets are numerous. They are physically open such that the player can move around (and the camera can follow). Activity on the streets can be sited in a single location such a street corner that must be taken from an occupying gang, or it can be in-motion like when one of the characters puts a tiger in the player's car and they must maintain composure as they drive around while being mauled from the passenger seat. Streets are at once both dangerous and safe: threats have access to the player from all directions and yet it also presents the opportunity for the player to flee. Combat on the streets of Steelport is illustrative of the city's specificity. When the player engages with a gang, for example, they not only have to kill the gang members in the immediate area, but the waves of backup support that arrive in cars during the course of the firefight. As quickly as the player moves through Steelport, so do enemies. It can be inferred that Steelport is a city made up of these support resources standing at the ready, who travel through the fluid networks of streets.

MIDNIGHT CLUB: LOS ANGELES (Rockstar San Diego, 2008) is an open world racing game set in a fictionalized representation of L.A. In the game, you play as a street racer new to the city, entering races that take place around the world to earn money to buy car upgrades to enter higher profile races with different types of vehicles. Races are made available to the player in a number of ways. In the first, race organizers or other contacts provide instruction to the player of the in-game cellphone, telling them to drive to a specific location that becomes marked on the player's map. Other races occur more spontaneously; designated other vehicles in the city will be marked as potential race opponents that can be engaged in while freely driving the streets. **MIDNIGHT CLUB: LOS ANGELES** is a game

largely understood as waypoints on the street. Because races take place in the type of city street that is not intended to be used as a race course, glowing waypoints that take the form of yellow smoke emerging from the ground mark the next checkpoint along the course. Some races are circuits in which the player repeats laps around the same path, while others are point-to-point races with looser paths that involve traversing distances of the city at high speeds. Whereas the built world of the city is static, the use of waypoints to create artificial paths reconfigures Los Angeles's streets on the fly.

MIDNIGHT CLUB: LOS ANGELES takes as its subject the city that's known primarily as a driving city (as historian and critic Reyner Banham quipped, "I learned to drive in order to read Los Angeles in the original") and creates a car-only world. With the exception of pre-rendered animated cut scenes that show the player's character interacting with others, the player's entire experience of the city is through their embodiment as a vehicle. This, of course, limits the parts of the city with which they can interact. The player's interaction with buildings is limited to these objects' qualities as an immobile geometry that creates the shape of usable/drivable space. In order to organize the game, races are clustered around geographic areas in the city: the Sunset strip leads to Santa Monica leads to the Hills and to Downtown. While the player can freely explore other areas whenever they want, there is little to do in these places when races have not yet been made available. Thus, the experience of Los Angles in this **MIDNIGHT CLUB** game is one primarily of landmark locales as observed from the road.

Figure 18: "Barf!" in River City Ransom (Technos, 1989)

Looking back to an older game in which streets were a significant component of the city, **RIVER CITY RANDOM** (Technos Japan, 1989) innovated on the usually side-scrolling beat-'em-up genre by putting the player in a city of circulating flows. River City is not a major metropolis, but what we might think of as a small town. The game starred two high school students named Alex and Ryan (Kunio and Riki in the Japanese version) who had to track down a gang-leader named Slick who has kidnapped Ryan's girlfriend and whose bands of thugs roamed the streets of River City. The game is structured as an open world in which the different stages of the game were physically interconnected (which was atypically advanced for games on the Nintendo Entertainment System).

Because the game involves traversing outdoor public space, it necessarily requires that much of the action take place on the streets. Starting at "Cross Town High School," the player must make their way through the city, brawling with gang factions like the Jocks and the Frat Guys, taking down the eight gang leaders, and eventually gaining access to River City High School to save the day. The streets in this game are divided into two categories. Most of the streets are areas for fighting gang members, but shopping districts that serve as safe hubs connects all these different areas. In these sections, the people that roam the street are not gang toughs but rather the general populace of River City. Gang leader "bosses,"

meanwhile are positioned in locations that branch off from the street, which helps organize the game around an activity flow of venturing outward into areas of increasing danger and then returning to a safe hub to buy items, power up the character, and proceed to the next area. The streets of River City are not only the site of action, but their interconnectedness structures the experience of the city.

Boundaries

The constitution of the videogame city involves properties specific to the medium. Boundaries can be established through level geometry and are made permeable through the code that establishes them. Some boundaries are physical: impenetrable walls, heights too tall to reach. Others are the result of mechanical limitations: while CJ can climb up and over fences and onto rooftops in **GRAND THEFT AUTO: SAN ANDREAS**, Tommy Vercetti in **GRAND THEFT AUTO: VICE CITY** cannot. There are fewer tall walls in Vice City as a result and any rooftops that the player needs to access have stairs leading up to them. But just as in real life, some boundaries can be subverted. In one **VICE CITY** mission the player is supposed to enter a golf course to track down and kill a crooked land developer. Entering through the main entrance requires passing through a metal detector, causing the player to leave all of their weapons outside the golf course and forcing them to improvise with the 5-iron waiting for them inside. But an enterprising player that brings along a vehicle and parks it right alongside the exterior fence is able to jump from the hood, to the roof, and then over the fence into the course. In this example, we can see two kinds of boundaries: a physical perimeter around the golf course intended to restrict the player's body and an algorithm tied to a spatial threshold intended to restrict the extensions of the player's body in the form of guns that would make the mission easier to accomplish. Boundaries in videogames are at once physical and virtual: they are effectively "real" from the vantage point of the player embodied as a something that can act in the space, and virtual in that they only exist because of programming code that prevents them from being crossed.

Because so much of the identity of **GRAND THEFT AUTO: SAN ANDREAS** is bound up in its technological accomplishment as a disc-based console game that has a giant landmass without loading screens that separate parts of the exterior world, it is not surprising that boundaries play a significant role in the game. Whereas the previous games in the 3D series focused on single cities, the titular "state" of San Andreas is composed of the three cities—Los Santos (Los Angeles), San Fierro (San Francisco), and Las Venturas (Las Vegas)—plus their surrounding countryside. Boundaries in San Andreas exist at multiple scales: down from the level of interior/exterior divisions, up through neighborhood identities and territorialism, across different regions, and even from above. Thematically, technologically, and experientially, **GTA: SAN ANDREAS** is about the dynamics of static and fluid boundaries.

Starting with the more micro-level scale, **SAN ANDREAS** made advancements to the **GRAND THEFT AUTO** series in the number of inside spaces that became incorporated into the gameplay. By way of comparison, **GTA III** uses almost no interior spaces, opting instead to site its action on the streets like its top-down PC progenitors. Even the player never really entered their own home location "safehouse," which was instead shown as an animation and a fade-to-black. **GRAND THEFT AUTO: VICE CITY** increased the number of interior spaces, including a handful of safehouses that could be entered, an indoor and an outdoor shopping mall, a small number of businesses, and a couple of houses that served as the scenes for gun shoot-outs. The number of interiors increased significantly in **SAN ANDREAS**, using more residential and commercial properties as locations for the game's missions. Because some (and not all) buildings can be entered, boundaries in San Andreas sometimes prove surprising. Without knowledge that a home or business is going to be used for a mission, the player is left to imagine that every interior might exist even if it never gets rendered. (In the same way we assume that the buildings of the world around us have insides, because why would they not?) Thus, the boundaries between immediately accessible,

eventually accessible, and inaccessible spaces parallel our typical experiences with cities of our world.

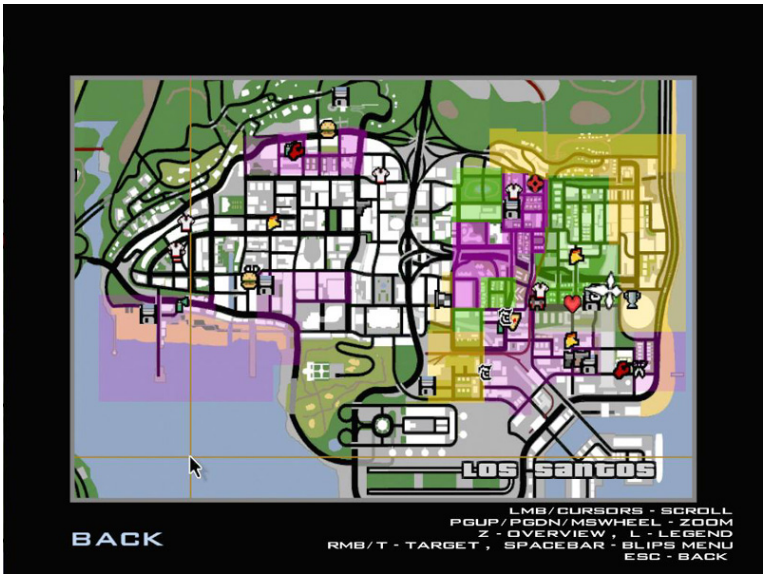

Figure 19: Gang territory map in San Andreas from http://lparchive.org/Grand-Theft-Auto-San-Andreas-(Screenshot)/Update%2090a/

On a larger scale, **SAN ANDREAS** plays with more fluid boundaries as expressed through its gang-territory control system. The city of Los Santos is home to numerous fictional gangs based on real-L.A. counterparts including the Families, the Ballas, Varrios Los Aztecas, and the Los Santos Vagos. At a certain point in the game, the player is asked to help come defend a block of territory that the Ballas gang are trying to take over. This establishes a side activity that can be performed during the rest of the game of defending your own gang territory while trying to control others'. These territories have set geographic regions that are shown on the player's map as filled-in with the color of the corresponding gang. The player can (and often needs to) enter into these territories, but if they linger too long or get too close to other gang members, they will be shot at. These boundaries are physically porous but are enforced through algorithms that abstract the complex processes of gang warfare into a simple game dynamic.

Lastly, it is worth considering the much broader boundaries of the geographic make-up of San Andreas's three cities. Though called "open world," games like **GRAND THEFT**

AUTO are perhaps more accurately described as "relatively open worlds of directed activity," in which architecture can be used to establish an activity flow.[7] Each city is located on its own separate island and the game proceeds first from Los Santos in the south east, across the water to the small towns of the mountainous countryside in the south west, north to San Fierro, across the water again and a bit northeast into the desert, east into Las Venturas, and south again through the hills back into Los Santos. Each large geographic region acts as a boundary intended to discourage progress into the next such that the missions (and story) in the game can unfurl in a prescribed fashion. As described in Chapter 2, there is a soft boundary at the start of the game between Los Santos and the rest of the state enforced through a narrative conceit (the police will attempt to prevent CJ from leaving the city, because they are keepings "tabs" on his activity). As the game progresses, the story effectively grants permission to the player to continue their journey into new regions (though intrepid players can find ways to see new places regardless). New cities present new spaces to explore, and as the player encounters story characters along the way, they will find themselves crossing ever-more momentous boundaries. Transgressions escalate: breaking into a drug den and a hip-hop mogul's house at the beginning of the game comes to be replaced by breaking into a secret government facility, military base, and even a casino heist by the end of the game. The player is never quite empowered, but by being associated with powerful people (often incidentally) the kinds of boundaries in the city the player can move through changes during the course of the game.

Ever-changing boundaries are explored in **TOKYO JUNGLE** (Crispy's, 2012). Set in a post apocalyptic world in which animals roam the streets, **TOKYO JUNGLE** portrays a city that considers how the dynamics of predator-prey relationships in space. The player takes on the role of a breed of animal that must survive by finding food, shelter, avoiding predators, and eventually finding a mate to produce offspring who will do the same. From dogs to gazelles to hyenas and lions, each species produces a different experience of the city based on the interplay between threatening and safe spaces. Predators and grazers, as they are

called, have different requirements for survival and usually occupy specific areas of the city in which the player tries to carve out a niche as the city replaces their natural habitats. In the survival mode, players start from the same location and must make their way across the city, establishing nests/dens and marking territory. Attempting to move forward through levels requires pushing on these boundaries, discovering how aggressively, defensively, or stealthily the animal needs to be to succeed. Patches of tall grass, for example, indicate potential software-enforced edges in the city. If the player enters a thicket of grass without being detected, they can stalk other animals' movements and, when the moment is right, leap from grass to lethally strike predator and pray. This basic system mimics other territory control systems from games, but because it is the primary challenge the way it organizes space, it becomes more readily apparent. Wild dogs and big cats prove formidable opponents to a beagle, but the hyenas' relationship with the lions makes it such that the king of the jungle is not as threatening. Not only do paths through the same city space play on the tension of kill-or-be-killed, the animal's body size also plays a role in determining which paths through the city are opened or inaccessible. This aspect of gameplay helps us realize that our conceptions of the boundaries between spaces we are and are not allowed or able to cross are influenced by scale.

Public and Private Spaces

One of the dynamics that boundaries enforce is the difference between public and private space. As a fundamental unit of the city this distinction marks a change from other sorts of habitation. Not only does it imply the individuation of ownership, it signals that city denizens recognize the importance of the collective public space. Much of the space of the city is public, especially because public usually implies outdoors. Public can includes the streets, sidewalks, parks, plazas, certain kinds of marketplaces, and the interiors of freely accessible buildings. (Books such as William H. Whyte's *The Social Life of Small Urban Space* and Kristine Miller's *Designs on the Public: The Private Lives of New York's Public Spaces* both

discuss the changing nature of public space in modern cities.) Public, in videogame cities, generally means not only accessible to the player, but also spaces where we would expect to find other occupants for whom the space is also accessible.

Videogame cities have two kinds of private spaces: functionally private and representationally private. "Cribs" serve as the **SAINTS ROW: THE THIRD'**s functionally private spaces, establishing boundaries between what is the player's personal space and the spaces occupied by the citizens of Steelport, rival gangs, and the military. Cribs are home bases for the player that serve a few game functions. Being inside the crib grants access to game menus such as vehicle retrieval, character and gang customization. It also functions as a location where members of the 3rd Street Saints Gang come together to move the plot forward. Usually cribs are safe spaces, but these boundaries can be violated for dramatic effect. For example, during the STAG Party mission, the special military force occupying the city attacks the Saint's headquarters and forces the gang out of the space. In general, though, these are protected spaces that provide the player with a home. Representationally private spaces recreate those we think of as private in our everyday life. Because the criminal activity of **SAINTS ROW: THE THIRD**'s is commercial in nature, the insides of homes are absent from the game's missions. Most of the buildings in the city cannot be entered freely and it is implied that these spaces—like the houses of average Steelport residents—lie outside of the game's purview.

The Manhattan of **TONY HAWK'S UNDERGROUND** (Neversoft, 2003) is nearly an entirely public space. Iain Borden chronicled the history of skateboarding in terms of public and private places: from the city streets and the drained pools of California backyards, to the fabricated skateparks and reappropriated public architecture, the place of skateboarding is always in flux.[8] This creates opportunities in the **TONY HAWK** games much the same as it does in the physical world. The player rides on every piece of architecture available—storefronts, staircase railings, the roofs of buildings, the sidewalk and street, and even telephone and power lines. Some missions involve impressing pedestrians through the

transformation of public property into spectacle. For example, a construction foreman on his break asks the player to perform a 45,000 point combo to entertain him and the other workers. Others involve escaping from security guards or police who have been designated to protect public space from intruders like skateboarding players. And yet another mission involves doing tricks on adaptations of famous Manhattan landmarks. The narrative of the game is not just about an up-and-coming skater trying to make it big, but the act of skating transforms public spaces into personal places dedicated to the player's use.

Figure 20: Investigating a Home in L.A. Noire

L.A. NOIRE is largely a game about the private lives of individuals being exposed in the public realm. Set in 1947 Los Angeles, it is a detective game set in an open-world city, though unlike other open-worlds there is a single designated path through the missions and little reason to drive around other than to reach the prescribed destination—an experience more akin to our typical routinized movements in daily life. The core mechanics of the game are investigating crime scenes and interviewing people, most often in public spaces. The first set of missions while in the role of a newly minted patrolman involve a murder in an alleyway, a bank robbery in progress, a sidewalk killing in broad daylight, and a mysterious blood-filled car abandoned in the middle of a train yard. Of these crimes, one example in particular illustrates what it means for the public to intersect with the private. The blood-filled car crime scene produces an address that sends the player to the private home of the man who is thought to be murdered. After hours spent in the previous missions exploring

public (and publicly accessible) space, rifling through the pristine suburban home of a missing man while his wife looks on feels oddly invasive. We of course recognize that this action is the purview of the police, but clues in the scene begin to tell a story not of a terrible murder, but of an unhappy married couple and what appears to be a death faked in order to runaway with another woman. After finally catching the disappeared Frank Black, he is placed under arrest—not for wanting to leave his wife, but for getting public resources involved in his private affairs. This demonstrates how the public space of the city is intimately bound up with the private lives of its individuals.

Figure 21: NYC Subway in The Darkness

Played from a first-person perspective, **THE DARKNESS** (Starbreeze Studios, 2007) was designed as a condensed representation of New York City defined in which movement on foot defines the everyday lived experiences of the main character's city. A handful of small neighborhoods, connected by two subway stations, stand in for the expanses of the real Manhattan and the player can travel between the neighborhoods on the subway. The main character Jackie Estacado grew up in an orphanage and is said to have never had a real home. Taken in by the mafia at an early age, Jackie effectively grew up on the streets and, as such, has intimate knowledge of the people and places in his neighborhood. **THE DARKNESS** begins on the night of Jackie's 21st birthday, just as Jackie is about to be assassinated by the mob boss who brought him under his wing. However, the plan goes

awry when Jackie is saved by a demon known as the Darkness that has possessed members of his family for generations.

The Darkness protects Jackie, manifesting itself in the game as four tentacle-like creatures that protrude from Jackie's back and, from the first person viewpoint, are seen in the player's visual periphery. The game, through its mechanics and narrative, show how Jackie thrives in public place.

The subway stations act as a hub to different places in the game. Brightly lit, it is inhabited at all hours of the day, and it is implied that Jackie, and thus the player, know a lot of the faces who hang out there. In the subway he has conversations with friends and acquaintances, many of who have his best interests at heart. The subway, as a public place with plenty of witnesses, is a non-violent space. The Darkness "retracts" back into Jackie's body when he enters the subway stations, in part because it cannot survive under the bright lights and in part because it doesn't want Jackie's power to be discovered. As such, there is no combat in this public place. The streets above ground, on the other hand, and are considered dangerous. **THE DARKNESS** is primarily a shooting game that is supported by special Darkness abilities, but these powers do not work in the light. Thus, not only does most of the game take place at night, but the player must also learn to shoot out streetlights and other illuminated objects in order to take advantage of Darkness abilities. Mafia hit men and other enemies prowl the streets looking for the player, but the Darkness powers amplify Jackie's street-smarts and ability to handle weapons, positioning the public space of the city as Jackie's advantage. Because the game is set at night, however, the game largely ignores the pedestrians of public streets. We are meant to assume that their day has concluded and they've retreated to private homes. Public space at night is transformed from collective use to the domain of the player, showing how different forces can exert their influence over the communal realm of a city's denizens.

Monuments and Landmarks

Monuments can be constructed in games in a number of ways. They might copy the kinds of monuments we expect to see in our own cities: statues to the men and women of history, fountains, and markers of previous events. One form of marker is the persistent alternation of an object or building in the game world. In **GRAND THEFT AUTO: VICE CITY** (Rockstar North, 2002), for example, one of the missions tasks the player with blowing up a building under construction, permanently altering its appearance. Monuments like these stand as a kind of marker to the player's past actions in the game. In the original **ANIMAL CROSSING** (Nintendo EAD, 2002), after paying off their final home mortgage, a statue is erected to the player in the center of town. There are also monuments to other sorts of cultural icons such as the landmarks of our physical world. The Gant Bridge connecting Palisades and Bayside in **GRAND THEFT AUTO: SAN ANDREAS** is a monument to the Golden Gate Bridge built not of steel and asphalt but polygons and code. But like other monuments, it fixes the image of bridge as cultural heritage as an anchor to a shared history. These kinds of uses can also bleed over into the representational component of city spaces as described in Chapter 4.

Figure 22: "Shifting" out to see the Transamerica Pyramid in Driver: San Francisco

Notable for its sizeable recreation of the city by the bay, **DRIVER: SAN FRANCISCO** (Ubisoft Reflections, 2011) is an abstraction intended to support quick modes of travel. In the game, the player takes on the role of a loose-cannon police officer named Tanner who, after a bad car accident, finds himself suddenly able to move his consciousness between other drivers in the world. If, for example, the player is pursuing a criminal who has made a sudden sharp turn in the other direction, they can activate this "Shift" ability to slow down time, zoom the game's camera out overhead to make a larger area visible, and use the controller to select another vehicle nearby. The game resumes from the perspective of this new vehicle until the player Shifts once again. During the course of the game, the player is able to Shift across greater distances—from the scale of the block, to the district, and later the whole city. Had the designers used a street-for-street recreation of the city, the level of detail would have required a staggering number of cars plotted along courses that are not necessarily great for driving. Thus, San Francisco is reimagined first and foremost as a racecourse of straight and winding paths in which even four-way or T-intersections are often rounded to support fast-moving cars. And, because the player is embodied as a car, their primary interaction with the city is through its architecture. Thus, monuments and landmarks become essential for conveying the San Francisco-ness of this abstracted city. From the Transamerica Pyramid and the Ferry Building to Union Square and Fisherman's Wharf, most popular landmarks take some form in the game, even if their details might not be entirely accurate. Most landmarks are only to be looked at and driven past, but one in-game challenge in particular makes use of the famous winding stretch of Lombard Streets, asking that the player drift-race their car down its length to earn an achievement titled "Lombard Streak." Large, notable landmarks fit with the game's design, which often involves high speed traversal and the map-like zoomed out view of Shifting. However, notable visual landmarks privilege a certain perspective on the city—that which is visible, that which remains, and that which has broad appeal.

The landmarks of **ASSASSIN'S CREED II** and other entries in the series are interesting because they not only recreate historical buildings as they once were (or that we imagined they were), but they are also documented and archived in a database accessible from within the game. Happening upon a major landmark in Florence, a notification panel will pop up on screen with the name of the building, a still shot of its façade, and the option to press a button on the controller to be taken to the database entry for further details. Because specific knowledge of these buildings has no applicable impact on the mechanics of the game, the inclusion of this feature is rhetorical. First, it is a way of surfacing the care that went into crafting the detailed world of **ASSASSIN'S CREED** to show the level of detail Ubisoft Montreal researched and implemented. Secondly, because many of its players are likely unfamiliar with the architecture of these European cities, these contextual pop-ups show that the game world is indeed based on real places of significance. This technique is similar to the way physical landmarks in the city around us are often marked with plaques that show names, dates, and history. Lastly, they help to form a bond between the real and the mediated, bridging the two ideals such that our familiarity with the places of the world around us might be replicated through the videogame city. (This sense of *placeness* is expanded upon in Chapter 7).

Returning to the Steelport of **SAINTS ROW: THE THIRD**, we can see examples of fictional monuments and landmarks being used in the construction of the city. Urban historian Lewis Mumford wrote that the "mark of the city" is a visible structure like a temple or monument that is the expression of power.[9] They might copy the kinds of monuments we expect to see in our own cities: statues to the men and women of history, fountains, and markers of previous events. Steelport's southeastern most island is one of the few spaces no faction in the game can claim as territory. Modeled after Liberty Island and the Statue of Liberty, Magarac Island boasts an enormous statue of a worker pouring molten steel into an I-beam. This monument to the city's fictional founding as an industrial town lends symbolic credibility to Steelport's populace. It is worth noting that the island's name is a reference to

Joe Magarac, the mythical folk hero of Pittsburgh steel worker.[10] Whether or not many players would understand this reference, the allusion relates a fictional city to a real city. Another "mark" of Steelport is the number of churches that dot its landscape. It can be inferred through their architecture (the Richardsonian Romanesque of Boston's Trinity Church) that these buildings stood long before the criminal and corporate takeover of the city, providing Steelport with a history.

Figure 23: Magarac's Statue in Steelport, Saints Row: The Third

As mentioned previously, another form of monument in the urban constitution is the persistent alternation of an object or building in the game world. At the conclusion of the early mission "The Belgian Problem," the player is given the choice to disarm or detonate a bomb planted in the Morningstar gang's Syndicate Tower headquarters. Detonating the bomb destroys the top floors of the building and leaves its smoldering remains for the rest of the game. This presumably relays the player's actions as something visible to the inhabitants and is narratively commented on by a news report that comments on the aftermath of the event. Likewise, toward the end of the game the statue of the steelworker on Magarac Island is destroyed, erasing a part of the city's steel history and rewriting it with the effects of the gang warfare. Monuments and landmarks are specific marks of the city that its citizens have come to collectively identify. Because they can tell

different histories for different groups, they signify the multiplicities of cities that can exist in a single geographic city. There might be as many interpretations of the city as there are people who live within its bounds, but by looking at the fixed constitutional requires of streets, boundaries, public spaces, and monuments we begin to understand how a specific structure can give rise to a collective use. The foundations of videogame cities are built from these components, while its skeleton is filled in by a wide variety of spaces. Some of these spaces are adapted from familiar pieces of architecture, while others draw from the conventions of the videogame medium. These spaces and their videogame functions help us understand how the city can be used as a place of movement, action, and play.

City Spaces their Game Functions

What are the kinds of spaces we expect to find in the city? Consider the game **URBAN CHAMPION** (Nintendo R&D1, 1986) whose city setting is entirely constructed of labeled building facades and the outline of a skyline in the background. Though the skyscrapers in the distance immediately call to mind the city, its specificity is made through the foreground buildings' signage: Barber Shop, "Snack" Bar, Book Store, Discount Store, Restaurant. Why does this assortment seem like a believable collection of commercial offerings? The spaces we expect to find indexed in games emerge are influenced by a number of factors. Most broadly, there is a pool of real urban spaces from which to draw, ranging from general categories like parks and marketplaces to narrower examples like coffee shops and hospitals. These are the spaces built in countless cities that contribute to the general function of their populace, whose presence signifies an interdependent community. They exist within buildings of various types: from low-rises to skyscrapers, from industrial to residential. Based on the *constitutional* requirement of boundaries, these constructed environments help establish ownership, belonging, use, and access based on an anthropological coding interpreted by embodiment. My cozy but aging apartment, their private garage underneath a nice condo, and our local grocery store; my family's blacksmithing shop, their army's barracks, and our basilica.

The built videogame city environment serves as representational symbols, metaphors for game mechanics, and spaces for action. They can act as symbols or mythologies for expectations about who uses the city and how it operates as indexed by banks, pubs, jewelry stores, haberdashers, tax offices, food courts, law offices, art galleries, and pawn shops occupy a dense area and represent the variety of urban residents. Public transportation and civic works exist alongside private factories and parking garages. Sometimes, as in the case of **URBAN CHAMPION**, these built spaces are represented simply through facades experienced in passing. While some buildings are named by a sign over a door or decal on a window, others are recognizable only as building types: this looks like a shop, that looks like an office building, those look like condos. Few of **TRUE CRIME: STREETS OF L.A.'S** (Luxoflux, 2003) buildings are adorned with identifying signs that specify their use, but based on other images of Los Angeles, preconceived notions of how zoning works, and a general understanding for how architecture can be used, it is easy to imagine what kinds of functions different buildings probably possess.

In addition to facades, there are other kinds of buildings the player might not necessarily enter but that perform a mechanical function for the game. Getting "busted" (arrested) or "wasted" (killed) in the **GRAND THEFT AUTO** series causes the player to re-spawn at the police station or hospital. The presence of these institutions of public welfare explains the game's police presence and notoriety system, and why ambulances will show up at the scene of a shootout or car crash. Lastly, there are the inhabitable/navigable spaces of the game city, with a noticeable division between interior and exterior with regards to the polygonal open-world city. Most of these tend to be the built forms exterior to buildings such as parks, alleys, subway stations, plazas, and other public locations. These make sense given the typical playful motilities of the player's embodiment (driving, climbing, flying, etc.) and the way these games focus on a navigable city as a design showpiece.

The interiors of buildings also serve an increasingly important role in game cities. With a finite amount of development resources, it is not uncommon to see older videogame

cities having to choose whether to focus on exterior or interior spaces. With all the effort required to build an animated living city that can be freely roamed, it seems reasonable to sacrifice the equally difficult modeling of the space inside those buildings (and vice-versa). And certain mechanics and mobilities are less applicable to one game than other. It doesn't make sense for Spider-Man to roam the hallways of an office building in the same way a cover-based shooter wouldn't work outside without walls or waist-high barriers. The on-foot games **DEUS EX** (Ion Storm, 2000) and **THE DARKNESS** (Starbreeze, 2007) are largely composed of interior spaces and adjacent streets, whereas the driving game **MIDNIGHT CLUB 3: DUB EDITION** (Rockstar San Diego, 2005) and even the on-foot/driving world of **GRAND THEFT AUTO III** are built to take place outdoors. Increasingly, however, more city games are incorporating exterior and interior space as expectations and development practices have changed. For example, whereas the missions of the first **SAINTS ROW** (Volition, 2006) take place primarily outdoors, by **SAINTS ROW IV** (Volition, 2013), a majority of the main plot missions are set inside of buildings and the effort required to navigate the city has been all but nullified by a new superhuman traversal mechanic. Examining the ways specific city spaces get used in videogames, we can see a game mechanical function assigned to architectural choices.

Skyscrapers and High-Rises

Perhaps the most vivid image of the city conjured in the American imagination is that of the skyscraper. Where once towers and steeples dominated city sightlines, the skyscraper serves as a mark of the post-industrial urban boom in which these architectural accomplishments were not only markers of triumph but also functional inhabited spaces. Whether the product of a desire to ascend to the heavens or new economic realities and aspirations, the skyscraper was a "stamp of modernity."[11] The complexity of the skyscraper, as Benjamin Flowers describes, cannot be understated.[12] Not only are they achievements of construction technologies, building materials, and engineering, they are also massive undertakings of civic planning and private capital. They involve political tensions, are

encoded with the ideology of their creators, and involve a complex network of users—from architect and welder to tenant and custodian. Skyscrapers, as spectacular accomplishments, become the fodder for mediated images of the city. From **KING KONG**'s conquest of the Empire State Building to the sweeping skyline shot of James Bond's visit to Shanghai in **SKYFALL**, skyscrapers carry heavy symbolic value. For example, media scholar Ben Highmore examines this value by relating the era of vertical skyscraper construction to the silver age of Marvel comics, which features heroes who must overcome the obstacles of the modern city with their extraordinary mobility.[13]

The skyscraper instantaneously declares a game space as a modern city. As in the earlier example of **URBAN CHAMPION**, the skyscraper and high-rise skyline that appears in the background of the play field transforms the plane of combat instantaneously. Like a matte painting, these skyline backgrounds serve as shorthand to situate the action within a larger space, lending specificity to the scene. And, like a matte painting, distant skylines are flat, which makes it easy to give the illusion of a large space using limited technical resources of a scrolling (or still) background in examples such as **GOLGO 13: THE MAFAT CONSPIRACY** (Vic Tokai, 1989), **ROBOCOP** (Data East, 1987), or **SPAWN: THE VIDEO GAME** (Ukiyotei Company, Ltd., 1995). Another simple way to depict skyscrapers in the background of 3D games is to map a texture depicting a skyline to a flat surface in the distance, such as seen in the opening Statue of Liberty level in **DEUS EX** or **Duke Nukem 3D**.

Skyscrapers are used in games as a setting for action in which players may occupy their interior, exterior, rooftop, or merely the ground around the building. The skyscraper and other tall buildings also serve a function that relates to Roger Callois's playful category of ilinx that involves the pleasures of vertigo. Christopher Alexander writes about this seemingly innate human desire in *A Pattern Language*:

> *"The instinct to climb up to some high place, from which you can look down and survey your world, seems to be a fundamental human instinct. Therefore, build occasional high places as landmarks*

throughout the city. They can be a natural part of the topography, or towers, or part of the roofs of the highest local building—but, in any case, they should include a physical climb."[14]

Figure 24: Climbing up to some place high in Prototype.

In games, we see it is not uncommon for a player of the later **GRAND THEFT AUTO** games to attempt to get on top of tall buildings as a self-imposed challenge. In **GTA III**, which had neither a climbing mechanic nor any freely pilotable aerial vehicles, there was little concern that players might end up on roofs and, as a result, the designers often did not bother making the upper floors of buildings solid objects. (The modding community, however, has made it possible to get on top of tall buildings in Liberty City with special modifications to the computer game.) **GRAND THEFT AUTO: VICE CITY** introduced helicopters and a sea-plane to the games vehicles, which afforded players the opportunity to reach to new heights (though many of Downtown's skyscrapers stood taller than the "artificial ceiling" that limits the altitude to which the player can ascend). **GRAND THEFT AUTO: SAN ANDREAS**, on the other hand, raised the artificial ceiling to well above the top of the skyline, gave the player new vehicles (including a jet pack) for reaching tall heights, and even implemented a parachute that was not only useful for ejecting from planes but also for base-jumping from skyscrapers such as the replica of the U.S. Bank Tower in downtown Los Santos.

Set in a series of historical cities, **ASSASSIN'S CREED** (Ubisoft, 2007) substitutes other tall structures like steeples and towers for skyscrapers. Because one of the primary activities of **ASSASSIN'S CREED** is climbing, these stately buildings serve a number of functions. First, they represent sites of power and are often placed in areas considered to be off-limits to the player. Secondly, they serve as a challenge to the player attempting to both reach their base and ascend to its heights. And, lastly, as a reward for climbing to the top the player is able to take in a bird's eye view of the region around the tower, "synchronizing" their in-game map with information gleaned from this panoptic position. The games' developers justified the pleasure of the climb with a narrative and mechanical function. Skyscrapers and their functional counterparts, philosopher Bernd Jager suggests, stand for "lived space, rather than as purely geometrical designations."[15] Dwarfing their observer, these structures create a sense of scale and place in the world. But through videogames we can be given the ability to conquer the vertical spaces of cities.

Residences

There are many kinds of residences in videogame cities. Most of these are the implied residences that compose the city's buildings—houses, high-rises, and hotel rooms are home to the nameless, faceless citizens the player might pass along the street. Like the private residences around us, we do not expect to be able to enter them freely and probably think little of their contents and occupants. There are, of course, specific instantiations of homes that the player is able to enter and use. For example, many videogame cities provide a specific home residence for the player that often serves both a narrative and functional/mechanical purpose. Often, the building itself stands in for the function of the house. As Peter Parker, players never have the opportunity to walk around Aunt May's home in Queens, but a waypoint beacon of light functions as the player "entering" the home and causes an animated cutscene to play. Many homes, however, are navigable. The "cribs" that serve as the **SAINTS ROW: THE THIRD**'s home base have a mechanical function of

granting access to game menus that can be used to retrieve vehicles, change weapons, and customize the character. In the **GRAND THEFT AUTO** series, the player's "safe house" cannot be breached by the police, military, or other enemies. Inside or around the safe houses in the games of the "3D" era (**GTA III**, **VICE CITY**, **SAN ANDREAS**, and the spin-off games) are icons representing items they've earned during the course of play such as body armor and weapons and ammo. Beginning the **VICE CITY**, the player could also change their wardrobe in their home. And, perhaps most importantly, the player needed to return to their safe houses around the city when they wanted to save the game. The types of residences in these games range from dilapidated apartments to mansions, signifying the player's progression through the economic ladder. Taking over the residence of drug kingpin Ricardo Diaz in **VICE CITY** is not only a narratively significant moment, it also gives the player the most centralized save-point in the city and grants them access to a helipad on the roof where they can store Vice City's most mobile vehicle. And Renaissance nobleman Ezio Auditore da Firenze manages the town of Monteriggioni from his vast complex at Villa Auditore in **ASSASSIN'S CREED II**.

Homes are not always houses, of course. Other "home" locations serve the function of a personal space for the player even if they do not have four walls and a roof. In **GRAVITY RUSH**, Kat takes up residence in one of the Auldnoir district's sewers. The player can travel to that location from anywhere in the city by finding manhole covers connecting the sewer system, and the home base functions as a save-point and a place to change costumes. A significant part of claiming this home is Kat's desire to fill it with household objects, which sends the player on a hunt for a bed, chair, and table. The player's "home" in **TRUE CRIME: NEW YORK CITY** is the police station. Marcus Reed's lack of a house is significant: it puts his work at the center of his life, it makes being an undercover cop easier by separating one personal life from other fictive lives, and it puts the game mechanics—procuring vehicles and weapons and going on missions—at the center of the world. Even non-human protagonists have homes that establish a personal space in relation to the rest of

the city. Playing as a racecar in **BURNOUT PARADISE** (Criterion, 2009), there is no home for the never-pictured driver that occupies the player's car. Instead, the Paradise City's five junkyards function as a stand-in for a base of operations as if that is where the cars live, and the player has access to their livery from a menu in these places.

Lastly, in addition to strangers' homes and players' homes, there are the residences we visit during the course of a game that belong to others. In **THE DARKNESS**—during a memorable scene that serves as a departure from the action of the game—the player sits with Jenny on the couch of her new apartment. As Jackie, the player can watch **TO KILL A MOCKINGBIRD** on the television from a first-person point of view, enjoying Jenny's company and a quiet moment in between the murderous action of the rest of the game. And, as in the **L.A. NOIRE** example of homicide detective Cole Phelps must investigating the home of the missing man Adrian Black, the life of the Black family is laid bare as the player examines every nook and cranny of their private home. In both **THE DARKNESS** and **L.A. NOIRE**, being inside in somebody's personal space serves as a brief glimpse into the lives of urban residents—a reminder that these fictional cities are occupied by fictional lives.

Figure 25: Taking a quiet moment in The Darkness

Factories and Warehouses

These two types of buildings are the most frequently represented forms of industrial usage. The warehouse, as a façade or exterior, signifies a type of district in the city. These places are not often frequented by residents who do not work industrial jobs, leaving room for the imagination to run wild about what goes on there after hours. Often, factories and warehouses have been associated with moving illegal cargo, which would make them the base of operations for criminals. In beat-'em-up and platforming games, the architecture of the industrial buildings makes them defensible positions, thus the player moves through them, encountering enemies on the way to their destination.

Most significantly in polygonal game cities, warehouses and factories are often the largest interior spaces a player will encounter in the city based because of the functions for which they are typically used. As a videogame location, serve as self-contained levels or arenas and that wide space is often used for gunplay. **THE GETAWAY** (SCEE Studio SOHO, 2003), **SAINTS ROW: THE THIRD**, **URBAN CHAOS** (Mucky Foot, 2000), **MAFIA** (Illusion Softworks, 2002), **GRAND THEFT AUTO: SAN ANDREAS**, **THE SABOTEUR** (Pandemic, 2009) and **L.A. NOIRE** are just a few of the games with missions that bring the player into the heart of a warehouse shoot-out. In fact, large industrial spaces such as these almost seem more common than not in game cities in which use shooting as a primary mechanic. These scenes likely have their roots in films that also use the warehouse shoot-out trope. Inside of large industrial buildings there's plenty of space to move around, objects and walls to take cover behind, and different angles on the ground and from suspended catwalks to get a view of the space. For the same reasons that industrial buildings are good for shoot-outs, they also afford stealth and sneaking mechanics in games such as **DEUS EX** (Ion Storm, 2000), **VAMPIRE: THE MASQUERADE – BLOODLINES** (Troika Games, 2004), and **SAINTS ROW IV** (Volition, 2013). The interior of the building can be used as a level itself, or the whole area in the city can link connected buildings. In **ASSASSIN'S CREED III: LIBERATION** (Ubisoft Sofia/Montreal, 2012), for example, Avaline must tail a man she suspects has

hidden stolen goods in the warehouses beside the New Orleans docks. The player must move between buildings, ducking behind crates, and avoid bystanders who would become suspicious of a well-dressed woman roaming the city's shipping district. Lastly, whereas the previous examples have all involved the use of these spaces as a place for other kinds of play, a handful of games actually have the player performing work in a warehouse. The forklift is a prominent figure in multiple games: in **SHENMUE** (SEGA-AM2, 1999) Ryo takes a part-time job at the harbour, CJ races to move crates of weapons in **GRAND THEFT AUTO: SAN ANDREAS** at the National Guard Armory, and Victor Vance must carefully load crates of explosive "boomshine" into the back of a truck in **GRAND THEFT AUTO: VICE CITY STORIES** (Rockstar Leeds, 2006). The **SHENMUE** harbor even turns into a playful racecourse when Ryo and his co-workers run laps around the shipping crates for their morning "warm up." Factories and warehouses of course exist in game worlds that are not cities, but make for a logical urban location that affords opportunities for playing in large, yet contained spaces filled with many large objects and labyrinthine angles.

City Squares and Public Parks

Plazas, courtyards, and other public squares are a frequent sight, and their use often relates to their open space and communal nature. As a development of urban design, public squares are part of an ancient form whose role in public life has been preserved.[16] As sites of play, city squares can be used as stages, arenas, and convergence points.[17] Marketplaces, plazas and piazzas appear frequently in the historical cities of the **ASSASSIN'S CREED** series. These games are about hiding in plain sight in dense urban environments and one of the primary ways of doing this is by blending in with crowds. While streets and alleys are avenues of movement, a square is a place one might expect to linger, meander, and take in the crowd. The squares of the Middle Eastern cities **ASSASSIN'S CREED**, the Italian piazzas of **ASSASSIN'S CREED II**, and the town commons of Boston in **ASSASSIN'S CREED III**, are often the sites of public historical events. In these gathering places the player might have

to eavesdrop on a conversation being held among the cacophony of voices, track down an assassination target without drawing attention, or merely pass through undetected. Because these games are so heavily focused on the portrayal of bustling urban pedestrians living their daily lives, these collective public spaces are of the utmost significance. Their activity is as varied as their form: a preacher sermonizes from a makeshift pulpit in front of a church, soldiers stand guard in front of the entrance to a government building, merchants peddle their wares, and strangers congregate. As game scholar Steffen Walz describes, "the play-ground of the square, a center of urban life in most European cities, reflects some kind of spatial and social structuration and, because of its scale and meaning, is capable of staging and processing central conflicts."[18] But though the square has served a significant part of historical cities in which plazas and piazzas are an integral part of public life, their use in more modern games is more rare. Perhaps as a symptom of the increasingly private nature of space, and perhaps a result of videogames' focus on movement and action, public squares have proven less significant in games with contemporary settings. However, one particularly colorful example exemplifies how these open spaces get used for gameplay. In **GRAND THEFT AUTO V**, a marijuana legalization advocate is staked out in Los Santos' version of Pershing Square. After a few encounters, this character offers a drag off of his particular potent strain of weed, causing the player to hallucinate. In the case of the protagonist Michael, "Legion Square" suddenly becomes converted into the site of an alien invasion, and the player must kill the threatening extra-terrestrials. All the while, however, the question of what is actually going on outside of Michael's mind lingers. Has the player just killed a hundred innocent civilians or police officers attempting to save Michael from himself? The choice of Legion Square as the site of this spectacle calls the public's welfare and safety into question in a world where madmen are slave to their id.

Similar to squares and plazas are parks—landscaped green space meant serve as "a wilderness as an antidote to the urban grid."[19] Rarely do games use them as a place for relaxation or an escape from the density of urban life, however. Most often, they get treated

as combat arenas. Shootouts occur in the Central Park equivalent of **GRAND THEFT AUTO IV**, while **SAINTS ROW: THE THIRD**'s major public park in Steelport gets turned into a base of operations for the military occupation. Central Park also appears in **SPIDER-MAN 2** and **ULTIMATE SPIDER-**Man to serve a unique purpose: a wide-open space with few tall objects means that Spider-Man has nothing to swing on, rendering him vulnerable. Because we associate large public parks with bustling metropolises, it becomes an easy way of signifying to the player that the videogame city they are experiencing posses the qualities one would expect to find in a real city.

Subway/Train Stations and their Tunnels

The subway's function as a transportation hub and component of city infrastructure is elaborated on later in this chapter, so this discussion of subway and train stations as place in the videogame city refers to it as a location where action takes place. As one of New York City's defining cultural settings, its subway system is an illustrative case study for demonstrating how stations and their tunnels act as a narrative environment and functions like a classic videogame dungeon. **THE DARKNESS** richly uses the subway as a narrative environment. The area of Lower Manhattan that comprises the city of **THE DARKNESS** can be accessed by two subway stops. These two stops—Canal Street and Fulton Street—lead to a handful of above ground neighborhoods, which are part of the life of the protagonist Jackie Estacado and are each limited in scale. Because it is nighttime during the bulk of the game, the Canal and Fulton Street subways stations are not bustling hubs of commuters but rather home to an interesting group of characters. Jackie talks with some familiar faces and also meets a group of break-dancers, a crazy tourist lady, a few homeless people, a street performer, and countless others. These characters provide color to the environment and actually make the subways stops feel more alive than the darkened city streets. They are also non-threatening, which is coupled with the game mechanics' restriction that the player cannot engage "Darkness" combat powers while inside the subway stations. Loading scenes

between the subway stations feature videos of Jackie lit by a spotlight but surrounded by blackness—reminiscent of a confessional or police interrogation—telling an unidentified audience about his memories growing up. A number of these are stories of the subway and his fondness for it. After leaving the orphanage, it seems Jackie found the subway to be a home even though he had other places to live. This is counter-intuitive because public places like subway stations are generally viewed as Non-Places where the inhabitants are in a state of perpetual transit. Yet, Jackie is in a state of perpetual transit, so his temporal experiences parallel those of the subway station and relatively align him with the spatial embodiment of the subway.

The subway in both **MAX PAYNE** and **DEUS EX** serve not as transportation but as the structural shape for guided movement. In **DEUS EX**, the subway not only represents a familiar space iconic of New York City, but it also simulates the videogame convention of the dungeon by using some of the structural conventions of dungeon space as adventure and conflict. In **DEUS EX**, the player can enter the subway platform from a choice of entrances depending on their style of play (guns blazing through the main staircase or sneaking around back while shooting enemies from the airducts), and once they have cleared the area they return to the surface report their success. As I have described before, the space of **MAX PAYNE** is a much more linear corridor-based trajectory. The subways platforms and tunnels are used to traverse space, while the train itself serves as a battering ram for **MAX PAYNE** to get into the next area. The game largely relies on the service areas and offices, a part of the subway system not experienced by regular riders. These are shown to be a handful of rooms deep and contain the equipment used in operating the subway that needs to be activated by the player to progress. This experiences is quite the opposite of the normal expectations of the subway, in which there is no effort expended in a largely automatic process.

The Metro system of Washington, D.C. factors heavily into the way the player moves through the bombed-out ruins of **FALLOUT 3** (Bethesda Softworks, 2008). Despite the lack of functioning trains after the apocalypse, the physical system of the subway maintains its

role as a mode of travel around the city. **FALLOUT 3** lets players experience the D.C. Metro in new way. Usually, when people speak of a subway they refer to the rail line's symbolic color that indicates its path, the trains that are a means of conveyance, and the stops that are the nodes of action. The purpose of riding the Metro in real life is to commute in more or less direct paths that need not adhere to the layout of transportation paths on the surface. It's intended to be a seamless transition from one place to the next. Though **FALLOUT 3**'s Metro is a transitional space between areas, some of which are inaccessible over land due to the debris of collapsed buildings, it is anything but seamless. In a reversal of real life, there is no "fast-travel" (the ability to jump to a part of the visited map instantaneously) when underground.

Figure 26: Metro station in Fallout 3

Institutions of Authority

Because cities bring so many individual desires into contact, a common force must maintain the ideology by which its people are bound. These forces primarily implement laws to regulate behavior and maintain the city's well-being. The institutional roles are filled by different representatives according to historical (or fictive) time period—royalty, the church, elected officials, corporations, and despots all have their power manifested in the built structures of the city. In **THE SABOTEUR,** it is the government buildings and military posts of the Nazi forces occupying Paris. One of the game's primary mechanics involves

destroying targets around the city, including military towers, sniper nests, guard posts, propaganda loudspeakers, fuel tanks and supply depots. Occupation is enforced by claiming physical space and requires bodies to stand guard, military infrastructure to enforce, and methods for controlling public information. As games about transgressing space, both **THE SABOTEUR** and **ASSASSIN'S CREED** establish physical and virtual boundaries for the authority's area of influence, especially with the use of map elements that indicate "areas of suspicion" around authority buildings through which the player should move stealthily.

The physical architecture of an institution of authority is probed during a heist mission in **GRAND THEFT AUTO V**. The "Federal Investigation Bureau" occupies a skyscraper in downtown Los Santos' Pillbox Hill district. Clustered with other institutional buildings, it represents the ever present eyes of enforcement (especially important in **GTA V** because of the player-character's past life as a bank robber). During the course of the game, the player finds themselves working in cooperation with rogue FIB agents and must break into the bureau's headquarters, which if they choose to do "covertly" involves using the building in a number of ways. Disguised as a janitor, the player rides the elevator to the top of the buildings to plant bombs while mopping the floors, while at the bottom of the building remaining heist crew masquerade as firemen to covertly enter the burning building. The explosions cause damage throughout the upper floors of the building, which not only prevents them from using the stairs, but also creates new pathways through the caved-in ceilings. Finally coming to an open elevator, the player repels down the cavernous shaft to escape the building. As an assault on a towering citadel, this mission demonstrates how authority manifests its power through built spaces. The presence of police stations around game cities serves as a reminder to the criminally-minded player that there are systems in place to antagonize their antagonism. Even though there are only a handful of police stations scattered around **VICE CITY**, a squad car can arrive at the scene of a hit-and-run or shootout almost instantaneously. Mechanically, the stations serve another function: if the player is "busted" by the police they will respawn in front of a station where it is implied

they've been bailed out by lawyer Ken Rosenberg whose voice is heard in an interstitial scene professing "Tommy Vercetti doesn't even own a gun! How could he do that?"

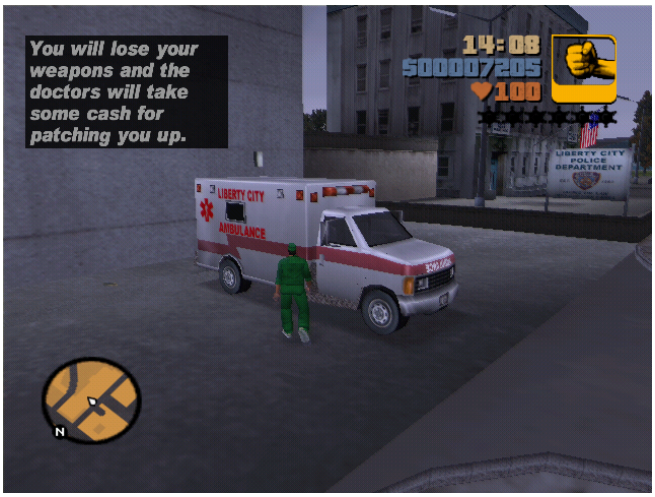

Figure 27: GTA III Ambulance

Institutions of authority are not always antagonistic, of course. And, depending on the role the player occupies, they might serve as the institution of enforcement themselves. In **L.A. NOIRE** and **TRUE CRIME: STREETS OF L.A.** (Luxoflux, 2003) the police station functions as a home base for the player. Hospitals too perform a function in the game city. In the same way a "busted" player respawns at the police station in the **GRAND THEFT AUTO** series, a "wasted" player will re-appear at the hospital (after paying a substantial fee, of course). The same happens in **N.Y.C.: THE BIG APPLE** (Synapse Software, 1984). If the player—who is touring sites in Manhattan—is struck by a vehicle, they must pay a significant hospital bill that uses up much of their travel budget. Hospitals are also implied to dispatch the ambulances that will arrive to help out injured pedestrians in series such as **GTA** and **SAINTS ROW**. And the player even turns into a sort of EMT in **ULTIMATE SPIDER-MAN** through the series of missions that require Spidey rescue and quickly deliver injured citizens to the nearest emergency room. The interiors of hospitals are not often sites for gameplay, so most of the work of hospitals as an urban institution occurs representationally through the building.

Restaurants and Bars

Though not exclusive to cities, restaurants and bars are frequently represented in game cities. These establishments are private spaces that serve as public places, allowing characters to interact with both conversation and conflict. Drawing on genre tropes from other media (in particular detective fiction), bars and pubs function as places to get information. **DEUS EX**, **DISHONORED** (Arkane Studios, 2012), and **L.A. NOIRE** all treat the bar as the heart of the community through which all life and information passes. Bartenders have their finger on the pulse on the city, witnessing all kinds of people passing through and overhearing their conversations. Significantly, the people that work in these public spaces are able to identify strangers and confirm identities.[20] Often, the protagonist knows the owner of the dining or drinking establishment, which grants them special access to this information. They are also frequently entangled with the criminal elements of the city. The Ciprianis, **GRAND THEFT AUTO III**'s Italian crime family, run Momma's Restaurante, out of which they conduct their illegal business. In the Havana of **ASSASSIN'S CREED IV: BLACK FLAG** (Ubisoft Montreal, 2013), pirates use taverns to conduct their business. And Ryo Hazuki finds himself involved with Dobuita's seedy bar scene as he attempts to find information about his murdered father in **SHENMUE**.

These previous example involve games of conflict, and thus restaurants and bars often lead the player to violent acts. However, **GRAND THEFT AUTO IV** introduced a non-violent game mechanic to the series in the form of social missions. In these events the player would either receive a phone call or place a phone call to one of the many characters that had befriended Niko to participate in a social activity. These included grabbing drinks, playing a round of darts or bowling, visiting a strip club or a comedy club, or going out to eat. Developing friendships through these actions was rewarded by favors (taxi rides, extra side-missions) made available to the player by the other characters. Characters also had preferences of activities they enjoyed—don't take your girlfriend to the strip club, don't take your rich friend to a dive restaurant, and don't take an alcoholic to a bar. By including these

establishments, a game makes a claim about the relationship between the player and the city. They grant access to knowledge about the city by putting individuals with different information into contact with each other, they comment on the slippery boundaries between open and private spaces, and they represent a public space for the city's inhabitants.

From Images to Imaginaries

While Allen's constitutional order sets requirements for the city, urban scholar Kevin Lynch's well-known classification of the five elements—paths, edges, districts, nodes, and landmarks—that are used to "image" the environment provides a useful way of describing the spatial makeup of the city.[21] Paths are channels of movement, edges are linear elements that are not paths but rather boundaries, districts are medium to large sections of space, nodes are strategic points which can be entered, and landmarks are visually distinct reference points often used for navigation and wayfinding. Using these five elements, "the world may be organized around a set of focal points, or be broken into named regions, or be linked by remembered routes."[22] As discussed previously, Lynch makes a compelling claim that while the city has no contiguous mental image, space is composed of hierarchies, dominant elements, and networks of sequences,[23] which means movement is a dominant form of meaning-making. Lynch's work has been frequently used in regard to games. Michael Nitsche addresses Lynch's elements in regards to patterns of spatial configuration,[24] Georgia Leigh McGregor in patterns on their effect on spatial use,[25] Steffen Walz within the context of movement and rhythms of space,[26] Ruth Conroy's early work on wayfinding in virtual environments,[27] and both Klainbaum and Bogost[28] and Zach Whalen[29] explicitly apply it **GRAND THEFT AUTO**. As a framework, Lynch's design-oriented approach proves useful because it focuses on navigating the city, making room for individual impressions of the space based on motility, attention, and activity. But though it describes a method for understanding a city's structure, it does have its shortcomings when applied to a range of urban activities.

Writing about play in the city, Quentin Stevens critiques the limitations of Lynch's model as one that only addresses way-finding.[30] The image of the city proves more complex, especially the "perception of spatial conditions which relate to their other activities."[31] Thus, Stevens poses a similar compositional model that includes paths, intersections, boundaries, and thresholds.[32] Additionally, Stevens adds two other elements that are products of the built environment that shape playful behavior are the dimensions of social relations (which have a physical component) and the props contained in the space. The constitution of the city and the resulting activities "generate disorder, spontaneity, risk and change [to] offer a richness of experiences and possibilities for action."[33] Paths and intersections offer sites of movement and encounter which can produce different results based on length and density. Boundaries, by differentiating spaces, define opportunities for play in response to social relations, role performances, visibility, and appropriation.[34] Thresholds are different than boundaries in that they are between indoor and outdoor spaces, often taking the form of stairs, plazas, and entryways.[35] The constitution of the city provides objects and spaces to react to, be they intentionally for leisure or subverted by people into play.[36] Steven's approach relates to the city that is immediately experienced in the moment, while Lynch's addresses an image of the city fixed in memory. Each of these city frameworks have their own merits for helping develop an image of spatial organization and orientation. The "image" of the city's component structure is but the first part of identifying a city's specificity. To further develop a picture of the city we must move from images to imaginaries.

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[1] Allen, "Constitution and Representation."

[2] Ibid.

[3] Ibid.

[4] Ibid.

[5] Lewis Mumford, "What Is a City?," in *The City Cultures Reader*, ed. Malcolm Miles, Tim Hall, and Iain Borden (London: Routledge, 2004), 93.

[6] Alexander, *A Pattern Language : Towns, Buildings, Construction*, 106.

[7] Mikael Jakobsson, "Activity Flow Architecture," in *Space Time Play*, ed. Friedrich von Borries, Steffen P. Walz, and Matthias Bottger (Basel: Birkhauser, 2007).

[8] Iain Borden, *Skateboarding, Space and the City: Architecture and the Body* (Oxford [England] ;;New York: Berg, 2001), 108.

[9] Mumford, *The City in History: Its Origins, Its Transformations, and Its Prospects*, 65.

[10] Stephanie Misko, "Pennsylvania Folklore... or Is It Fakelore?," The Pennsylvania Center for the Book, Fall 2008, http://pabook.libraries.psu.edu/palitmap/JoeMagarac.html.

[11] Benjamin Sitton Flowers, *Skyscraper: The Politics and Power of Building New York City in the Twentieth Century* (Philadelphia: University of Pennsylvania Press, 2009), 15.

[12] Flowers, *Skyscraper*.

[13] Highmore, *Cityscapes*, 124–125.

[14] Alexander, *A Pattern Language : Towns, Buildings, Construction*, Pattern 62: High Places.

[15] Edward Dimendberg, *Film Noir And The Spaces Of Modernity* (Cambridge, Mass.: Harvard University Press, 2004), 95.

[16] Camillo Sitte, "The Relationship Between Buildings, Monuments and Public Squares," in *The City Reader*, ed. Richard T. LeGates and Frederic Stout (Routledge, 2011), 480.

[17] Steffen P Walz, *Toward a Ludic Architecture: The Space of Play and Games*, PDF eBook (Pittsburgh, PA: ETC Press, 2010), Section 14.

[18] Ibid.

[19] Miodrag Mitrasinovic, *Total Landscape, Theme Parks, Public Space* (Aldershot: Ashgate, 2006), 27.

[20] Dimendberg, *Film Noir And The Spaces Of Modernity*, 24.

[21] Lynch, *The Image of the City*, 46.

[22] Ibid., 7.

[23] Ibid., 115.

[24] Nitsche, *Video Game Spaces: Image, Play, and Structure in 3D Game Worlds*, 161–163.

[25] McGregor, "Situations of Play: Patterns of Spatial Use in Videogames."

[26] Walz, *Toward a Ludic Architecture*, 16–17.

[27] Ruth Conroy, "Spatial Navigation In Immersive Virtual Environments" (University of London, 2001).

[28] David Leonard, "Virtual Gangstas, Coming to a Suburban House Near You," in *The Culture and Meaning of Grand Theft Auto*, ed. Nathan Garrelts (Jefferson, NC: McFarland Press, 2006).

[29] Zach Whalen, "Cruising in San Andreas: Ludic Space and Urban Aesthetics in Grand Theft Auto," in *The Meaning and Culture of Grand Theft Auto* (Jefferson, NC: McFarland, 2006).

[30] Quentin Stevens, *The Ludic City: Exploring the Potential of Public Spaces* (New York City, NY: Routledge, 2007), 207.

[31] Ibid.

[32] Stevens, *Ludic City*.

[33] Ibid., 1.

[34] Ibid., 114.

[35] Ibid., 152–164.

[36] Ibid., 2.

INTERLUDE:
THEME PARK CITIES

Waiting on the train platform, crowds of people splinter off into small groups to slowly enter the doors of the approaching car. It's a carefully choreographed affair quite, unlike the typical subway system in which the masses spill out of and into train cars in short bursts. In this new public transportation system, we see a solution for urban congestion posed by the "hardware-fixated" 1960s.[1] These automated "people movers" are composed of smaller, more frequent trains that proceed along their tracks piloted by computers that carefully coordinate and pace their movement. As architectural critic Michael Sorkin writes, whereas the freeway was once seen as the advanced infrastructural antidote to surface road automobile congestion, the people mover was a fantasy of Newtonian ordering through which the city's seemingly irrational nature of motion could be tamed and regulated.[2] Embracing the rhetoric of scientific management, the people mover acts as a conveyer belt for humans. Perhaps based in his experiences working with world's fairs, one of the proponents of the people mover was Walt Disney. Joining with Goodyear—the company who had developed numerous people mover technologies—Disney installed an elevated track for a people mover to provide a tour of Disneyland's Tomorrowland from above. Along side the monorail, the PeopleMover (as it was creatively named) demonstrated a vision for moving around the city as tested inside the Disney theme park. As cultural critic Margaret King proclaimed: "[the] parks may provide an alternative vision of what people seek in urban environments: everyday life as an art form, with entertainment, fantasy, play-acting, role-playing and the reinstatement of some of the values which have been lost in the megalopolis."[3] This bit of urban infrastructure lends to the sense of Disneyland as a place that looks like a little city—a feeling that emerges in a number of locations throughout the parks.

Tomorrowland was home to the PeopleMover in Anaheim Disneyland until it was decommissioned in 1995, but remains a staple of the Magic Kingdom in Orlando, Florida.

This version of the park's land had some similarities to its California counterpart, but has developed in its own separate way. In 1991, critic Stephen F. Fjellman suggested that Tomorrowland in the Magic Kingdom might better be called "concreteland" because of its harsh white walls and asphalt vistas.[4] At the time Fjellman was writing, the entertainment offerings in Tomorrowland were quite different. The rides and attractions that persist today—*Space Mountain*, *Tomorrowland Speedway* (formerly *Grand Prix Raceway*), the Tomorrowland Transit Authority (formerly WEDway PeopleMover), and the *Astro Orbiter* (formerly *Star Jets*)—were surrounded by the now defunct Delta Airlines' *Dreamflight* (formerly Eastern Airlines' *If You Had Wings*), *Mission to Mars*, and *American Journeys*. Tomorrowland's theme was more accurately "Transportation" than it was "The Future," but the future it did portray was "the future of old science fiction movies, when the dominant tone was the stark white of a bright sun on flat concrete buildings."[5] Tomorrowland at the opening of the Magic Kingdom in 1971 had only two rides, but over the years accumulated a variety of disparate elements. So when the Walt Disney Company decided it was time for the land to receive an update, they decided on a new theme that would not be so easily outdated. Eloquently articulated by cultural historian Karal Ann Marling, the problem with the future is that "Tomorrow has a distressing habit of catching up with daydreams about it."[6] And so, New Tomorrowland, unveiled in February of 1995 was actually a Tomorrowland of old—the 1920s and 1930s vision of what the future might be.[7] It was decided that this area would be tied together with both an aesthetic theme and as a kind of complement to Main Street U.S.A. Crossing over the bridge into Tomorrowland, the small town of the past transitioned into the big city of the future. In what Marling describes as a "simulated community," the so-called New Tomorrowland was adorned with the figures of city: a Chamber of Commerce, a public exhibition hall, the Power and Light Company (resembling a Peter Behrens-style turbine building), its own Main Street in the form of the Avenue of the Planets, and the newly redubbed "Tomorrowland Transit Authority" PeopleMover. The original piece of

transportation infrastructure that wove through the sights and sounds of the attractions had become a symbol of how a bustling galactic city might operate.

It is hardly surprising that the teams of Imagineers, executives, and business analysts would settle on a city as a theme. In their own ways, Disney theme parks are cities of different scales. Disneyland has streets, boundaries, monuments and landmarks, and though its "public" spaces are actually privately controlled, they are imbued with a sense of public by the very nature of how they are used by visitors within the constraints of Disney's rules and regulations. They have visible and invisible infrastructure—from the cast members who sweep and collect garbage to the engineers who pull the levers and push the buttons in the "Utilidors" (utility corridors) beneath the park. Since its construction, Disneyland has referred to ideas about what cities could and should be. Standing at its entrance as the sight that comes even before the iconic Sleeping Beauty's Castle, is a railroad station—a piece of infrastructure that denotes destination and connotes community. Main Street, U.S.A. has a town square, a fire station, shops, "homes," and its own cast of "Main Street Citizens" such as the mayor and councilmen who patrol the streets and entertain tourists. This tribute to small town America, according to Marling, begins to hint at the urbanism that replaced it, especially evidenced in the Main Street of Disneyland Paris that begins to use the symbols of modern cities and whose experience bleeds out into the surrounding Paris.[8] Around the Disney parks, one can find numerous examples of home tours: Mickey and Minnie's houses in the Magic Kingdom's old Toontown Fair, the short-lived Monsanto House of the Future in Disneyland in 1957, and the Swiss Family Robinson tree house in Adventureland. You may not be able to live in a Disney park, but you certainly can glimpse what it might be like.

It is perhaps a bit ironic, then, that the Walt Disney World park that was first imagined as a fully functioning city ended up as anything but. EPCOT—the Experimental Prototype Community of Tomorrow—that Walt Disney had planned and displayed on his 1966 television program would be a testing ground for the intersection of urban planning, landscape design, and creativity. Whereas the Magic Kingdom might be described as a

"Mumfordian" vision of organic urban planning, EPCOT was to take on the shape of Ebenezer Howard's 1898 "Garden City of To-Morrow" pastoralism with Le Corbusier's Ville Radieuse rationalism.[9] Instead, the place that emerged, as the result of numerous factors, took a different shape. Future World was built in the front half of Epcot Center; six major themed pavilions surround the "CommuniCore" that lies just beyond the iconic geodesic sphere Spaceship Earth. Taken as a whole, the buildings and structure of Future World might seem to have its own streets, boundaries, public places, and monuments, but it becomes evident that whereas the Magic Kingdom is a place where you can imagine people might live, the park that began as a foray into urban planning lacks the representational characteristics we associate with cities. In the next two chapters, I will discuss what makes the city something that we can imagine and how the presence of infrastructure contributes to city sense.

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[1] Michael Sorkin, *Variations on a Theme Park : The New American City and the End of Public Space*, 1st ed. (New York: Hill and Wang, 1992), 220.

[2] Ibid., 221.

[3] Margaret J. King, "Disneyland and Walt Disney World: Traditional Values in Futuristic Form," *The Journal of Popular Culture* 15, no. 1 (June 1981): 127, doi:10.1111/j.0022-3840.1981.00116.x.

[4] Stephen M Fjellman, *Vinyl Leaves: Walt Disney World and America* (Boulder: Westview Press, 1992), 354.

[5] Ibid., 355.

[6] Karal Ann Marling, *Designing Disney's Theme Parks: The Architecture of Reassurance* (Montréal; Paris: Centre canadien d'architecture/Canadian Centre for Architecture ; New York : Flammarion, 1997), 140.

[7] Ibid.

[8] Ibid., 99.

[9] Fjellman, *Vinyl Leaves*, 202.

CHAPTER 4:
REPRESENTATION AND IMAGINARIES

The representational order of cities is less rigid than the constitutional order. Whereas the constitutional order is a set of requirements for spatial organization, representation is anything that brings the city to life, "animating" the lives of its denizens.[1] In the traditional sense, it is the social, political, and economic exchange produced by the city's inhabitants. In many ways, it specifies the constitutional elements: What kinds of private and public spaces are in a city? What are the boundaries between? How are the streets used? What are the monuments to? Here, I have aligned the representational order with Lefebvre's "representations of space," which refers to the manner by which social and cultural understandings of space guide the conception and function of that space. It also belongs to the same category as Soja's Secondspace of the "imagined," which is not to say that the representational is not made real, but that what we see is the product of our conceptions about how real space serves the dynamics of social, cultural, and information exchange. This section is primarily concerned with how the representational order is made manifest in urban imaginaries, game and urban design practices, and city narratives.

What makes a place *feel* like a city? On the one hand, we might consider its architectural features. Do cities have to have tall buildings? Does it mean there is more concrete and asphalt than green space? On the other hand, it may be that which fills the city with activity. Is a city bumper-to-bumper traffic or elbow-to-elbow people on the streets? Is it the boutique shop next to a dive bar? In both cases, there is something to be said for the density of the city. But the constitutional-representational framework allows for cities of all scales, which means that density must be relative to an era, a region, or a culture. Our notions of skyscrapers and cars stuck in gridlock represent a contemporary conception of the city; what we think of older or unfamiliar cities comes from other sources: discussions in a history class, photographs in a *National Geographic*, or an expertly constructed film set. How we conceive of the city as a place we've lived or visited is ultimately inseparable from our

consumption of mediated cities. And together they build the urban imaginaries of real-and-imagined space.

Urban Imaginaries

Imaginaries are the convergence point between how "the city affects imagination and how the city is imagined."[2] Cultural historian Norman Klein employs imaginaries in the urban context in *The History of Forgetting*,[3] tracing the term from its use by Lacan and Althusser to Hegel's conception of "the capacity to see in a thing what it is not."[4] Urban studies scholars Sallie Westwood and John Williams too use the term imaginaries to describe the subject of their edited collection on cities. Examples of imaginaries include "literary productions, notions of urban myth, memory and nostalgia in the city and its environs, or to the sociological imagination re-cast within the changing realm of new technologies and forms of communication."[5] Imaginaries are wrapped up in the non-physicality of the urban process. Like Westwood and Williams, urban studies scholars Gary Bridge and Sophie Watson open their comprehensive compilation of city theory with a declaration that "cities are not simply material or lived spaces—they are also spaces of the imagination and spaces of representation."[6] In addition to our imagined understanding of the shape of cities—the streets, buildings, parks, and shopping districts discussed in the previous chapter—we also have any image of what it is that fills the city with activity. "Commonsense accounts of the city," writes James Donald, "are sustained and produced through the myriad imaginative cityscapes narrated by literary and cinematic productions."[7] Imaginaries, as portrayals of the city, convey cityness beyond the constitutional construction. Videogames, as a medium, draw heavily on other forms of mediated cities. Thus, we should consider how representations of the city bring different imaginaries to life.

Those of us who live in a city or have lived in cities in the past may have strong images of how a city is organized and run. But is not only our immediate, tangible experience that colors our imagination. Though cities are differentiated from one another through certain qualities, Anthony King describes how "the city" has become an entity in itself:

"... the social and geographical 'lived experience' of an increasing proportion of the world's population is not simply of one city but a number of cities (or at least fragments of these) [...] the urban has further been enhanced and also confounded by the vast proliferation worldwide of information as well as visual imagery of the city, electronic, photographic, and textual. Collective imaginaries of the city, therefore, are necessarily highly complex. One city (or part of one) is imagined through the subconscious lenses of many remembered or forgotten others."[8]

Sociologist Sharon Zukin opens her book on the culture of cities with an observation that the word "culture" is often seen as an antidote to the impersonal bureaucracies that exert their power over the shape and function of the city.[9] Culture, in the popular conception, is art gallery openings, independently owned coffee shops, and adventurous cuisine. However, while culture binds, it also excludes. It is a symbolic economy of consumption that produces changes in space.[10] Ethnicities are expressed through restaurant awnings and menus in the window. Symbols tell the story of who lives and works in a neighborhood and these narrative elements prompt different kinds of understanding, separating "our" street from "their" street. Strangers mix and are separated, locals sift through the mesh of tourists, and physical boundaries are erected when social boundaries fail. Cultures increasingly construct images in the city to stake their claim and, consequently, images can fabricate culture.[11]

The symbolic component of architecture is one factor in the larger framework of architectural and city representation. In the essay, "Function and Sign: The Semiotics of Architecture," Umberto Eco extends semiotics, which had previously been the domain of linguistics and visual communication, to the architectural form.[12] When it comes to interpreting meaning in our built environment, architecture performs powerful symbolic work. The White House, for example has many meanings. Metonymically, it is a globally known image that stands in for the government of the United States. It is a functional building that acts as an office, residence, museum, and monument. Its architectural style harkens back to both mid-Atlantic colonial architecture and to the Greek architecture that

embodied the ideals of America's founding. There is no single interpretation of what this work of architecture means since unifying symbols "can function only where there is already a bond to reinforce."[13] Meanings are not formally taught but instead operate subconsciously through a lifetime of absorption.[14] To this end, Umberto Eco's work on the semiotics of architecture as a form of communication remains useful for understanding how space can exhibit a sense of specificity through a dialogue between objects, arrangements and the people that engage with them.

Eco identified a problem within the fields of urban design, architecture, and even industrial design: most architecture functions rather than communicates. Architecture is a type of mass communication because it is aimed at mass appeal, it is psychologically persuasive, it is experienced inattentively, it is interpreted in the bounds of norms, it can be both coercive and indifferent, and it is part of everyday life.[15] Eco refers to the cave used by early homo sapiens as not only a source of shelter, but a mental model of what shelter and ownership mean and, eventually, how humans can replicate the phenomena of the cave through building.[16] The recognition of "codes in place"—the architectural code that determines form and the iconic code that propagates use—distinguish one physical object from another. In a less deterministic phrasing, Eco writes that "it is codified meaning that, in a given cultural context, is attributed to the sign vehicle" that characterizes the architectural object.[17] Code—a word shared by architects, sociologists, and computational practitioners—is at the center of Eco's argument about how a space communicates its specificity. Because symbolic and linguistic "codes" make multiple readings possible, different people can interpret a single space as different places.[18] The semiotic study of architecture is highly dependent upon variations in culture and its study must take into account the anthropological concern of context. We cannot merely look at a public park on a city block and know exactly what kind of place it is. Instead, we can only make conjectures based on its denotative and connotative codes and then learn the context in which to interpret its possible meanings.[19] Architects most commonly focus on technical codes—engineering

problems, building materials, plan—but it is the syntactic and semantic codes that communicate the meaning of a space.[20] A staircase denotates its use by communicating function (a structure that goes from down here to up there) as well as use (the distance and shape of vertical planes as they ascend are usable by legs and feet). An elevator, which has the same function, is an entirely different form and its code must be communicated (either through interface or instruction). We recognize these same kinds of codes in games. Linear structure is implemented in the otherwise open world of **GRAND THEFT AUTO: VICE CITY** (Rockstar North, 2003) through staircases, low ledges, and ramps. Tommy Vercetti, the player's character, does not have the ability to climb on objects, which restricts vertical movement. Because of this, the player does not get to freely run around rooftops, playing on the building. But it does afford pre-designed linear paths for certain missions. In "The Chase," Tommy tracks down a gang member who has been stealing a cut of the drug profits. The traitor spots the approaching player and flees his second floor apartment, proceeding along the rooftops of a block of buildings. A curious player may have discovered this path earlier in the game while roaming the city, but it is not obvious that there is a linear space until the player sees the series of staircases, ramps, and make-shift plywood bridges in use during the mission. Only through use, then, do we see the relationship between what the built environment communicates and how it functions.

Henri Lefebvre combats the deterministic qualities of structuralism in *The Production of Space* through spatial practice—the active process engaged by people that constantly reshape space. Space is not a semiotic text to be read, but rather a language-like texture that is felt.[21] Michel de Certeau too "feels" space through the population's varied uses in "Walking in the City." Of course, few people interpret space without the prompts of the environment, so it is fair to say that the way space communicates likely lies somewhere between structural determinism and individual freedom. As James Donald reasonably synthesizes, "imagination is always a creative, but also constrained, interchange between the subjective and the social."[22] The representational qualities of spaces are dynamic processes.

"We do not just read the city," writes Donald, "we negotiate the reality of cities by imagining 'the city'."[23]

Imagining the City

The previous chapter looked at architecture itself as enabling expressive videogame form. While paintings and writings have long fixed the image of the city for media consumption, the image of the modern city, as explained by media scholar Eric Gordon, derives from the development of photographic technology. During most of the 19th century in the United States, urban tourism was a limited category.[24] Cities were spread far apart and had not yet been framed in terms of leisure. The issue of distance was resolved as the railroad network made passenger travel more accessible and more comfortable; people with moderate means could make short recreational trips.[25] As a result, the tourism industry began to produce new images of the city including guidebooks and photographs. As Gordon describes: "When the unremarkable architecture and industrial landscapes of American urbanism that once stopped Americans from desiring their own cities were framed as distant, picturesque images, they had the capability of coalescing into a cohesive city."[26] The late 19th century also saw the construction of the first major U.S. tourism site: the Chicago World's Columbian Exhibition. Gordon views the White City of the 1893 world's fair as "the first instantiation of a city built to accommodate this emerging possessive spectatorship."[27] Burnham and Olmstead, influenced by the whole-city planning trend that emerged from the revitalization in Paris, saw the fairgrounds as an urban project that had as much to do with people's ability to create an image of the space as it did with building materials and infrastructure.[28] As Gordon explains, the White City's visitors "believed they could take control of the Concept-ciy, consuming it like any other media object."[29] Most significant to this new way of experience the city was the Kodak "brownie" camera, which not only allowed tourists to snap and possess their own views of the fair, but also was described by contemporaries in a hobbyist magazine as "play" and as sport in Kodak in advertisements that compared "snapshooting" to hunting.[30]

Photography was, of course, not the first way of imaging the city. Literature provided a significant outlet for reflecting upon the city. Victor Hugo established a metaphor of a great leviathan's intestines for Paris's sewer system, which had undergone expansion during the late 18th and early 19th centuries. Opening the second book of **LES MISERABLES**, Hugo details the sewers and their relation to Parisian society. Functionally, it serves as the route of Jean Valjean's escape, but it also acts as Hugo's governmental critique.

> *"The sewer, in old Paris, is the rendezvous of all drainages and all assays. Political economy sees in it detritus, social philosophy sees in it a residuum. The sewer is the conscience of the city. All things converge into it and are confronted with one another. In this lurid place there is darkness, but there are no secrets. Everything has its real form, or at least its definitive form. This can be said for the garbage-heap, that it is no liar [...] A sewer is a cynic. It tells all."*[31]

Literary historian Robert Alter notes that much of the writing about the city in literature concerned its documentary qualities as presentation of material reality.[32] But the exponential growth experienced by European cities in the beginning of the nineteenth century led to different portrayals by novelists such as Joyce and Flaubert.[33] Novelists increasingly portrayed the urban shift through experiential realism, which used characters that were aware of their surroundings and stories that influenced a kind of urban behavior.[34] Similarly to how I have excluded **SIMCITY** from the scope of this research, Alter chooses to leave Balzac to the many scholars before him because Balzac represents the city from a totalizing, authoritarian standpoint.[35]

Lev Manovich opens *The Language of New Media* with a prologue describing Dziga Vertov's **MAN WITH THE MOVIE CAMERA** as a kind of database film that captured the city from a perspective, "half- way between Baudelaire's flâneur and computer user: no longer just a pedestrian walking through a street, but not yet Gibson's data cowboy who zooms through pure data armed with data mining algorithms."[36] Like Google's Street View maps, computers have the encyclopedic ability to store and retrieve spaces that have been digitized. Through them we can view a representation of what a space looked liked at a certain time.

Or, as in the case of the website Everyblock, the city can be represented by stories on a map collaboratively contributed by the citizens.[37] The life of the city is mediated in text, image, sound, and video and computer users can navigate these spaces to get a sense of that space's life.

The genre of film noir, perhaps more than any other, established a grammar of city space in the cinema. Many film historians consider the city as a primary character in the noir genre,[38] and games set in the city frequently borrow from noir's conventions. Early noir was often born out of crime-fiction and the detective novel, in which authors like Raymond Chandler and Dashiell Hammett set their characters in the midst of urban unrest. Not only do urban settings prompt tales of crime, corruption, violence, and unrestrained desire,[39] they are at the same time externalizations of the anxiety associated with these conflicts.[40] Noir was also a product of the city that emerged from the "critical energy" of Los Angeles and Hollywood and was influenced by issues of masculinity, German expressionism, existentialized Marxism, and filmmaking itself.[41] Even when noir moved out of the city, opening itself to new locations, the characteristics of the urban remained prevalent in both the protagonists and the setting. Countless commentators have illustrated the visual motifs of the city in film noir—the sidewalks and streets, urban diners and swanky nightclubs, the offices that overlook the street belonging to both law enforcement and private detectives, the apartment lost amongst a sea of others, and the innumerable hiding places the close-quartered city has to offer.[42] "The repetition of standard views propose them as a kind of photodocumentary cliché, an image of the city recognizable by everyone," and this grammar of visual symbols permeates all forms of media.[43] The two most common settings in noir were Los Angeles and New York—both locations that served as the center of the film industry. German filmmaker Fritz Lang, visiting Manhattan in 1924, declared that it was "a beacon of beauty strong enough to be the centerpiece of a film."[44] Early Hollywood studio films built New York City as simple facades, wheraas those of the 1930s and later were built on sound stages and relied more heavily on miniatures and mattes to establish depth of

space.[45] Rarely were films shot on location in New York City—notable examples like **THE NAKED CITY** (1948) and **KISS OF DEATH** (1948) announced "on location" in the opening credits. More commonly, establishing shots of New York City's skyline were used to introduce the space before transporting the characters and audience to a synthesized facsimile.

Aerial and long-shot sky-line views of the metropolis, crowd sequences filmed from ground level, and scenes of escape from the urban center underscored the ideological significance of spatiality in the film noir cycle.[46] Film noir explored an urban "body" that emerges as the product of intersecting cultural, cinematic, and technological discourses.[47] Film noir critiqued the processes of modernism's rationalization of systems in the way "dehumanizing laws apply to the urban environment."[48] The many tight spaces of Alfred Hitchcock's **THE WRONG MAN** (1956) echo the claustrophobia felt by the protagonist as he is forced through the mechanisms of a highly procedural law enforcement system. And the city takes on the titular name of John Huston's **THE ASPHALT JUNGLE** (1950), which opens with Dix Handley evading the police by ducking through the forest-like concrete pillars. The corner grocery store in Billy Wilder's **DOUBLE INDEMNITY** (1944) finds itself representing a miniature version of the city, with Barbara Stanwyck and Fred MacMurray hiding behind stacks of cans and boxes standing tall like buildings and skyscrapers. And, the border town between Mexico and the United States in Orson Wells' **TOUCH OF EVIL** (1958) takes on the divergent characteristics of the cultures that have been put into juxtaposition in a single space. The directors of these films used cultural concepts in framing their narrative while constructing telling visuals through the architectural composition. These films have also contributed to the vast imaginaries that explore the range of possibilities of the city, and provide an example of how we can think of representational spaces in videogames.

To Live and Die in L.A.

To discuss the slippery boundaries between the material and immaterial city, it is worth considering how an imaginary is built out of many different sources. Los Angeles, in particular, is one of the cities most frequently written about because of its unique development, its relation to media production, intellectualism, and politics, and its diverse population. To consider L.A.'s urban imaginary, we can look at writing that addresses the city's many forms: as a place in California, as a setting in film, as the subject of music, and its depiction in games.

> *"Los Angeles is already a kind of microcosm and forecast of the country as a whole: a new centerless city, in which the various classes have lost touch with each other because each is isolated in his own geographical compartment."*[49]
>
> — *Fredric Jameson*

By way of exploring the specificity of a city, not only can we look at its mediated images, but also how writers commenting on that place explicitly have interpreted them. Orson Welles called Los Angeles the "bright, guilty place." These words resonate with the characteristics of a city in the popular imagination, connecting first hand observation with hearsay and the local lived experience with mediated representation. Mike Davis, for example, has written extensively about the

development and culture of Los Angeles. The place itself is treated as an object in which its many processes and tensions coalesce into an observable whole. For Davis, L.A. itself is taken as a transformative place: "To move to Lotusland is to sever connection with national reality, to lose historical and experiential footing, to surrender critical distance, and to submerge oneself in spectacle and fraud."[50] That Los Angeles should be treated as simultaneously an observable whole, spectacle, and fraud is not a surprise. Morrow May's critique of Los Angeles argued that "[it] is not a mere city. On the contrary, it is, and has been since 1888, a *commodity*; something to be advertised and sold to the people of the United States like automobiles, cigarettes and mouth wash."[51] As the mecca of American

media, the image of Los Angeles is constantly made and re-made and L.A., asserts architectural critic Michael Sorkin, "probably the most mediated town in America, nearly unviewable save through the fictive scrim of its mythologies."[52] Los Angeles is like a particle in quantum mechanics: when we measure it through one mediated lens, we can no longer measure it using others. And yet, there is an underlying assumption that a central "Los Angeles-ness" exists around which all of these particles orbit. Raymond Chandler's **THE LONG GOODBYE** (1953), Ridley Scott's **BLADE RUNNER** (1982), reality television star Lauren Conrad's novel **L.A. CANDY** (2009), and the television show **NCIS: LONG ANGELES** (2009—) are all equally plausible interpretations of Los Angeles. None of these are true, but they are also not fiction. Los Angeles exists based on who is listening, reading, or watching.

Games set in Los Angeles take on numerous themes frequent to the media produced about and in the city. Rockstar North's perspective on Los Angeles for **GRAND THEFT AUTO: SAN ANDREAS** was drawn largely from the images, characters, and stories of films like John Singleton's **BOYZ N THE HOOD** (1991) and the Hughes Brothers' **MENACE II SOCIETY** (1993). **L.A. NOIRE** bears its influences in its name. **MIDNIGHT CLUB: LOS ANGELES** draws from the "tuner" culture of street racing that has been popular since the hot-rodding era. And **TRUE CRIME: STREETS OF L.A.** is premised on the action-movie scenarios of an undercover cop infiltrating various criminal organizations. In **AMERICAN MCGEE PRESENTS: BAD DAY L.A.** (Enlight Software, 2006), the streets of the city realize their own mediation when a multitude of disasters strike Los Angeles at the same time. In this satirical third-person shooter, players take on the role of a homeless man who is thrust into the role of a hero to stop crooks, terrorists, and zombie who have overrun the city—a perfectly plausible scenario given L.A.'s Hollywood history. So, it is not just that videogame representations of Los Angeles draw from the actual city, but that it enables connections between the real and imagined such that the two are inseparable.

Figure 28: Los Angeles as Los Santos

San Francisco at Sixty Frames-Per-Second

A single frame captured an astonishing sigh: suspended from a series of kites stretched 950 feet in the air, photographer George Lawrence's 49-pound camera fixed the image of the city of San Francisco in ruins after a 7.9 magnitude earthquake in 1906 demolished the city in one of the worst natural disasters in American history.[53] This panorama, centered on the Ferry Building and the broad avenue of Market Street, shows the handful of standing buildings that still dotted the otherwise flattened landscape—tragedy on the grandest scale.[54] Single frames like this photograph recorded the ever-changing landscape of America's western metropolis, and panoramic images in particular had become popular representations of the city. From Eadweard Muybridge's "Panorama of San Francisco from California Street Hill" in 1877 atop a home's roof,[55] to the 1914 image of the future site of the Panama-Pacific International Exposition that showed the skyline painted onto the film with white ink,[56] panoramic photographs of San Francisco proved popular. Single frames not only fixed moments, they fixed stories. Using the technology of photography, write historian Peter Hales, "The streets of [Muybridge's] city not only declare his preeminence at the center of his created world but, for his entrepreneurial sponsors, place the heart of the city in the residential neighborhood of the richest and most powerful of San Francisco citizens."[57] The photographs of the earthquake's devastation tell not only the story of catastrophe, but also the process of rebuilding in the photographs taken in the years that followed.

Architectural historian Gunther Paul Barth described San Francisco as an "instant city" that "came into existence suddenly and flourished immediately."[58] Instant cities come into being and mature quickly, usually spurred on by a valuable resource, and are notable for being transplants of other cities that piece together a "mosaic of practices, largely borrowed from the past, but reflecting in their immediacy and usefulness the creativity of new cities."[59] Perhaps this is why Alfred Hitchcock put together a visually striking of San Francisco at 24 frames-per-second in **VERTIGO** (1958). Resembling the panoramic photographs of the city, Hitchcock's **VERTIGO** was shot with Paramount Studio's new VistaVision film format, which widened the horizontal frame and projected the image at a higher resolution. "VistaVision," writes film scholar Ana Salzberg, "reveals the imposing material dimensionality of **VERTIGO**'s sites in direct correlation to their psychological valence and role in the diegetic mythology."[60] Its expansive field of view, projected on a large screen, places Scottie and Madeline not just on the screen but also into the city itself.[61] As if the next evolution from panoramas, Paramount's VistaVision captured the varied architecture, colors, and sounds of San Francisco with impressive accuracy.

Consider, then, two game series that considered the photogenic city of San Francisco through changing visual technologies—**TONY HAWK'S PRO SKATER** and **DRIVER**. The first **DRIVER** game brought to life a 3D navigable world two years before **GRAND THEFT AUTO III**. In its version of San Francisco, the city streets were entirely gridded at right angels due to limitations in the rendering engine used on the PlayStation. The buildings along the street were textured with surprising detail, though the duplicate facades made it difficult for players to identify their exact location when not near a major landmark. This representation of repeated sights, though it may seem limited, is actually quite apt. "Much of San Francisco's charm," writes architectural historian Richard W. Longstreth, "was identified with the overall visual effect of the city rather than individual landmarks [...] the scale of building was small, and the settlement dense."[62] Graphical depictions that we now perceive

as limitations were, in their contemporary moment, actually quite astonishing. Game journalist Douglass Perry described this urban representations with enthusiasm:

> *"the absolute best part of* **DRIVER** *is its graphic realism, and in particular its geographic attention to detail [...] So if you're familiar with the streets in SF or Los Angeles, you'll probably recognize the area where your favorite deli or clothing store is. Of course, company names aren't there, but their likeness is. The maps tell all, as do the SF streets, with which I'm all too familiar. Man they're steep!"*

This quotation alludes to San Francisco 's longstanding role as the home of numerous of videogame industry news websites, which makes it particularly interesting to see how these reviewers interpret games that are set in their home city. Released a decade later, the city of **DRIVER: SAN FRANCISCO** was described similarly by Giant Bomb senior editor Jeff Gerstmann:

> *The game is set in an open-world version of San Francisco, which works well because of its varied terrain and extreme hills. That said, if you're a local, don't expect to find your house. It's a stylized take on the city with a handful of the bigger landmarks. The basic districts are where they belong, at least, but the roads are way wider. [...] it's a great-looking version of San Francisco that runs at 60 frames per second, which goes a long way.*[63]

Figure 29: "What if it snowed in San Francisco?"

Although the recreation of San Francisco may not have been entirely accurate, Gerstmann's comments point to the importance of visual technology's ability to capture and render a version of the city best suited for its chosen medium.

The other series that saw re-imaginings of San Francisco was **TONY HAWK'S PRO SKATER.** In 1999, the first game in the series assembled a collage of landmarks distributed over hilly terrain (to which gravity seemed not to apply). Because of the limitations of the CD-ROM technology and graphics rendering, the "draw distances" that rendered objects on the screen were relatively short. Without being able to see much of the city, it is hard to spatially imagine the locations of objects, so this collage approach is a reasonable design decision. However, it leads to strange geographies like the gates to Chinatown suddenly dead-ending in a cul-de-sac. Contrast this portrayal with another sports game set in the city: **JONNY MOSELEY MAD TRIX** (3DO, 2001). Discussed in further detail in chapter 6, the game is premised on snow having fallen on popular international locales. In 2002, Ryan Davis, then an editor at the popular game review website GameSpot, imagined that if the experience of playing the game "is any indication, it would be ugly, slow, and entirely unenjoyable if it snowed in San Francisco."[64] San Francisco's hilly terrain fit the genre of a downhill skiing sports game, but the representation of the city around slopes was disjointed and unspecific.

However, by the PlayStation 2 games on discs could render much larger distances, so the San Francisco of **TONY HAWK'S PRO SKATER 4** (Neversoft, 2002) was rebuilt differently. The city took the form of a drastically condensed Embarcadero—the road that runs along the water—placing the Financial District and the Ferry Building in close proximity to the Pier 39 shopping area that in reality is over a mile away. The choice of this area of San Francisco for a skateboarding game is immediately apparent: it is among the flattest parts of the City by the Bay. Former videogame news site IGN editor Jeremy Dunham described the verisimilitudinous treatment San Francisco had received in **TONY HAWK'S PRO SKATER 4**: "Set in the Fisherman's Wharf area on the bay, our ride through the docks past an eerily represented Bubba-Gump like restaurant and other familiar landmarks was jaw dropping to say the least. They've even seen fit to include a heap of

randomly generated tourists trying to find hamburgers that cost less than $8 (good luck on that one)."[65]

Though not as popular as Los Angeles or New York City, San Francisco has made for an interesting location to design around. Its unique combination of hills and flats, its geographically compact nature, and its eclectic mix of architecture are at once both constraining and freeing. Like Hitchcock's mobile camera in **VERTIGO**, there is pleasure in merely experiencing the expanses of the city and the buildings that surround. But whereas L.A. and N.Y.C. are often chosen for their thematic opportunities, few game developers have yet to address the socio-cultural complexities of the city. What might make a San Francisco narrative unique? Turning to the themes and stories cities, we find a way to unpack the dynamics of the city experience.

Urban Stories

There are myriad reasons why a game developer or designer might want to choose to set their videogame in a city. Maybe they were motivated by the architecture itself as a thing to play on. Perhaps they have seen other games set in cities as a formula for financial success. Their starting point might also be a narrative premise that influences the kinds of activity and tasks the player will participate in. Centuries of stories about the city have influenced the setting of various games—from a place of wonder to a place to be feared. These stories, in conjunction with technical constraints, lend representational specificity to videogame cities by providing premises for player activity, by constructing narrative environments, and (though, unfortunately more rarely) by establishing arcs during the course of play that allow the player to reflect on the city itself.

Journeys to the City

To illustrate this frame of reference, we can step momentarily outside of inhabitable polygonal worlds of this dissertation to examine common narrative trope that plays out spatially: the journey to the "big city." The city-as-destination has long been a narrative in

everything from literature to film to videogames. The character or characters journey from the countryside or their small town seeking the opportunities of the city—fortune, love, and sophistication. The city is perceived as a transformative place; when its gates are crossed the adolescent becomes an adult, the meek become strong, the poor are given new hope. Transformations often go the other way when the city tempts and corrupts. Full of gifts and curses, its opportunities fit neatly into the monomyths that forms the basis of many Japanese Role-Playing Games (JRPGs): a young boy from a small village receives a call to adventure that often brings them to the seat of power located inside of the city—a feudal relationship of countryside and stronghold paralleling rural-urban dynamics. **FINAL FANTASY** (1987 JP, 1990 U.S.) is one such game that provides set of towns (a term implying relative size, but still by definition a city) to help us think about the development of dense urban centers. The game's opening town of Coneria (Cornelia in later translations) consists entirely of buildings that function in service of the player: shops for buying magic, weapons, and armor; a sanctuary for healing ailments, and an Inn that functions as a place to "heal" the adventurers whose origin resides in **DUNGEONS & DRAGONS** and works of fantasy literature. There is a fountain in the middle of the street, paved pathways that connect the buildings, and even people walking around. On the world map, the town is shown as being connected to a castle complex north of it, but the player must exit the town to the map and enter the castle separately. What Coneria is lacking, however, are the boundaries that designate privately owned residences. Perhaps, then, we can assume that Coneria is more of a marketplace for those living in the castle or for travelers visiting the king. By way of contrast, Pravoka (the next town the player visits) seems to be self-sustaining. There are actually buildings off-limits to the player, which we might assume are the residents' homes. It's a shipping port, so we also might assume that some buildings are primarily for economic affairs. Pravoka has streets, boundaries, public and private places, and even a statue monument. Its function in the game is absolutely the same as Coneria—a place to recover health and buy items that improve the player's character—but it has a density that gives it the feeling of the *place* of a city.

By way of contrast, other games of the JRPG genre reverse this pattern and start the player off as a character in the city before sending them off on their adventure. The city affords introductory tasks that act as tutorials. In **SUIKODEN** (Konami, 1995 JP / 1996 NA), the game opens in the Golden Palace of the city of Gregminster. The player must complete a handful of errands for the emperor, making short trips out of the city before venturing out into the dangerous lands filled with monsters and under siege by an opposing empire. Following a similar pattern, **FINAL FANTASY XII** (Square Enix, 2006) begins in the capital city of Rabanastre where the lead character Vaan—a street urchin who lives in the city's slums—makes money by performing odd jobs. One of these jobs is to clear the sewers of rats, which is an architectural network that would be performed by a character of Vaan's low social status. Vaan's knowledge of the underground networks is what also allows him to sneak into the city's palace to steal valuables, an act that brings the game's characters together and sets the story in motion. And in **FINAL FANTASY VI** (Squaresoft, 1994) the coal mining town of Narshe comes under siege at the beginning of the game by soldiers of the Empire who learn that a magical being has been discovered in its mines. At this point, the city becomes the site for a high-profile struggle for the magical creature and the player must flee to the countryside where they can more easily hide. In all of these cases the city itself symbolizes some kind of relationship that can be had by merely going to, or being in the city. The city transforms, offers opportunities, and wields power.

The American Dream

The transformative power of the city is worth considering in a metanarrative that may not be made explicit but is certainly implicit in the motivation of so many games. The "American Dream" tells us that if we work hard and surround ourselves with the right opportunities, we can achieve success no matter our station in life. This belief is at the center of **GRAND THEFT AUTO IV** (Rockstar North, 2008), whose story is of an immigrant fleeing his home country in search of a better life and whose arc follows the trials and tribulation associated with becoming successful. **ASSASSIN'S CREED II**'s metagame involves

building up the city around the player's villa and the player becomes a landlord to shop-keeps and brothels alike. And even a skateboarder in **TONY HAWK'S UNDERGROUND** (Neversoft, 2003) progresses from small-town poser to big-city superstar. But even when the player is not explicitly working toward these measures of success, they are engaged with games that reward time and skill. In racing games like **MIDNIGHT CLUB: LOS ANGELES**, progress comes in the form of car upgrades and new challenges. Kat levels up her special abilities in **GRAVITY RUSH**. Players come to understand how these cities work and use that to their advantage when engaging with the games' dynamics. A player of **THE SABOTEUR** learns the best hiding spots, a driver in **BUS SIMULATOR 2010** perfects a route, and a Jonny Moseley earns a highscore by finding the best spots to perform skiing tricks in the snowy San Francisco of **MAD TRIX**. In the end, all of these games involve understanding how the city's design, processes, and organization will lead a player to success.

Conflicts with Authorities

The premise of a significant number of game cities relates to conflicts between groups of power. Because of the density urban residents and the disparities of their resources, we assume that conflict is inevitable. Dystopic cities are portrayed in media as dysfunctional, crime-ridden, in the midst of great crises, bound up in social and racial conflicts, and overrun by an often technocratic authoritarian force.[66] Their desire for conflict promotes familiar dynamics: cops and robbers, vigilantes seeking justice, the oppressors and their oppressed, and criminals trying to outdo each other. The videogame city provides opportunities for players to inhabit these varied roles to and in doing so we begin to understand what the urban world means to each.

The city has a long association with crime. From London's Jack the Ripper to the Japanese Aum Shinrikyo, the safety of the city captures our imagination by way of our anxiety. The association of the player with a criminal (or at least someone living outside the law) likely stems from the freedom granted when not following rules. It excuses shooting and reckless driving, for example. Much like the novels and films in which a criminal is the

protagonist, taking on the role of the criminal provides a different view on the world, allowing us to experiment with social norms.[67] Walter Benjamin remarked that detective fiction's association with the city stems from the sociality of people hiding in plain sight among the dense masses of people and buildings.[68] The city creates a "mental life," described by Georg Simmel in which we become indifferent to looking at the activity around us[69] But at the same time, the city is also a massive surveillance apparatus that watches everything.[70] Often, this means that the player can get away with delinquent behavior so long as it doesn't draw attention. Nobody is going to investigate the player's gruesome murder of drug kingpin Ricardo Diaz in **GRAND THEFT AUTO: VICE CITY**, but accidentally hitting a pedestrian while driving or firing off a few shotgun rounds in public will cause the police to respond with force. **MAFIA** takes a different tactic that forces the player to obey traffic laws and holster their weapons while in public; in **THE SABOTEUR** the soldiers occupying Paris will grow suspicious if they spot the player with a weapon drawn. In the city we are both constantly alert yet always distracted, and games play on these dynamics by constructing fluctuating states of awareness.

It is surprisingly rare to play as a straight-laced police officer in videogame cities, and even those games that take on this perspective usually have a twist on the formula. In both **URBAN CHAOS** (Mucky Foot Productions, 2000) and **THE GETAWAY** (SCEE Studio Soho, 2003) the player's time is spent switching between playing as a police officer and another, less lawful, character. **CRACKDOWN** (Realtime Worlds, 2007) embodies the player as a genetically modified superhuman officer who, like Robocop, is the last resort for a gang-infested city. More frequently, we see the player positioned to walk the line between good and bad. One of the reasons **GRAND THEFT AUTO** (and other games in which you are a criminal) works in a city setting is that the player can hijack a car at any time, which increases player mobility across expansive spaces. So, in the **TRUE CRIME** series of games, including **SLEEPING DOGS** (Square Enix London, 2012) being an undercover police officer affords the player the right to act like a criminal in spite of fighting on the side of good. Upstanding

police offers don't really get to commandeer vehicles at their whim, but a cop posing as a criminal is absolved of this intrusion. Because of this, Nick Kang-Wilson, Marcus Reed, and Wei Shen can traverse Los Angeles, New York City, and Hong Kong with little resistance. The same is also true of Detective John Tanner of the **DRIVER** series, who has spent over a decade undercover in cities across the world. A rarer alternative to playing as the police to take care of the city appears in the early PlayStation 2 game **CITY CRISIS** (Syscom Entertainment, 2001) in which the player pilots a series of rescue helicopters around a polygonal city. In one mode, the helicopter is equipped with a water hose and water missiles to extinguish fires while airlifting stranded people from the tops of burning buildings. In the other, they assist the police from the helicopter by tailing a suspect in a car chase. **CITY CRISIS** is a creative take on assisting urban enforcement that demonstrates how even a non-existent narrative tells a story about the city.

Vigilantes step in to protect the city when other state apparatuses fail. Whereas television and film valorized the cowboys on horseback as the vigilantes of the open expanses of the American Wild West, superheroes have become the protectors of the city. Superman, Batman, Spider-Man, and Daredevil all care for their cities and have talents that allow them to be highly mobile in these spaces. Superman found his way onto the Atari VCS in 1978 in a game that was inventive, but extraordinarily difficult to play. The player was charged with flying around Metropolis capturing criminals, repairing a bridge, and stopping Lex Luther. Batman has long beat up thugs in Gotham, starting on the Amiga in **BATMAN: THE MOVIE** (1989, Ocean Software) through **BATMAN: ARKHAM CITY** (Rocksteady, 2011). And although Spider-Man had been featured in games previous to his summer blockbuster film debut in 2002, it was not until **SPIDER-MAN 2** (Treyarch, 2004) that Peter Parker was able to freely web-swing around New York City. Stories of vigilantism depict cities that are no longer manageable by traditional means. For Spider-Man, New York City is in need of two kinds of help: eliminating the super villains plotting to terrorize the city on

the one hand and reducing petty crimes like street muggings on the other. For Batman, the situation is dire, as the tide of crime in Gotham proves almost irreversible.

Another frequent narrative about relationships to authorities comes from fights against the authoritarian powers that control cities. These stories are similar to vigilantism in that characters take it upon themselves to fight for change, but are dissimilar in that they involve fighting against the institutions of power themselves. This long-standing narrative framework has frequently used the city as the site of concentrated power. From Jean Val Jean's struggles in the novel **LES MISERABLES**' revolutionary Paris to Neo's awakening in the virtual filmic city of **THE MATRIX**, the city is seen as a contest between the powerful and the disenfranchised. The games **INFAMOUS** and **PROTOTYPE** both star characters with superpowers trying to take down evil governments by penetrating the city's architecture. **ASSASSIN'S CREED** is premised on taking down the Templars who have invaded the ruling class at every level, but because their organization is well guarded the only way to infiltrate it is by sneaking around the city streets and traversing uncommon paths. **GRAVITY RUSH** is about an unlikely hero who has gone rogue in order to prove that the government is going to unknowingly bring about a terrible evil that will destroy her city, and her gravity-shifting powers allow her to help restore pieces of the world. And **MIRROR'S EDGE** provides context for its first-person parkour mechanics by telling the story of free-running messenger courier pursued by a totalitarian state.

Detective fiction, and its parlance into the stories of film noir, is largely concerned with the space of the city. In particular, it is the detective's job to connect disparate spaces by following links through the city. As Benjamin writes, "the original social content of the detective story was the obliteration of the individual's traces in the big-city crowd."[71] Despite the density, the city is composed of fragments. Investigation takes on different forms in games. On the traditional end of the spectrum, **L.A. NOIRE** is the detective/noir story remediated into videogames. The player drives from location to location looking for clues and interviewing bystanders and suspects. The graphical adventure games **BLADE RUNNER**

and **GRIM FANDANGO** are early examples of this formula being the center of gameplay, but even in games in which the "detective" posture of inquisition is not the primary mechanism for interaction it can be incorporated as a component of the larger game. For example, Commander Shepard explores the Citadel (a towering futuristic city) in **MASS EFFECT 2** (BioWare, 2010) while trying to uncover the mystery of a missing girl—using the traditional detective strategy of interviewing city residents and hunting for clues in a game that on its surface looks like a science-fiction third-person shooter. Detectives have special knowledge of the city and are able to move through its built form in a way most other civilians cannot.

Urban Wonders

Though rarely the game city's raison d'être, the spectacle of the city as a place of wonder functions as a subtext in many games. A major plot point in **BATMAN: ARKHAM CITY** involves the player exploring the subterranean depths of the island's makeshift prison-city, discovering the ruins of the world's fair-like Wonder City that have been buried for hundreds of years. Discovering the city within a city illustrates the stratification of history through centuries of architectural building. Diagetically, characters in a game might respond to being in awe of the city. But equally as important is the sense of wonder felt by the player who explores these urban worlds. **GRAND THEFT AUTO: VICE CITY** is not just a story about a mob goon's rise to power; it's a story about the pleasure of indulging in a technological accomplishment that is able to recreate a specific place and time. **VICE CITY**'s imaginary is built from its representations of existing spaces, its indexing of media iconography, the in-game radio stations that play hits from the 1980s, the story told through cutscenes and voice acting, and all of the things that being a "**GRAND THEFT AUTO"** game implies. When the neon lights and pastel facades zoom past while Talk Talk plays on the radio and water droplets bead up on the car windshield, we can find pleasure in the wonder of a whole new city brought to life.

Figure 30: Batman encounters Wonder City

[1] Allen, "Constitution and Representation."

[2] Gary Bridge and Sophie Watson, "City Imaginaries," in *A Companion to the City* (Malden, Mass.: John Wiley & Sons, 2008), 7.

[3] Klein, *The History of Forgetting*, 9.

[4] Ibid., 20.

[5] Westwood and Williams, *Imagining Cities*, 1.

[6] Bridge and Watson, "City Imaginaries," 7.

[7] Westwood and Williams, *Imagining Cities*, 12.

[8] Anthony D. King, "Boundaries, Networks, and Cities: Playing and Replaying Diasporas and Histories," in *Urban Imaginaries Locating the Modern City* (Minneapolis, MN: University of Minnesota Press, 2007), 2, http://site.ebrary.com/id/10212637.

[9] Sharon Zukin, The Cultures of Cities (Cambridge, MA: Blackwell, 1995), 1.

[10] Ibid., 2.

[11] Ibid., 3.

[12] Umberto Eco, "Function and Sign: The Semiotics of Architecture," in *Rethinking Architecture: A Reader in Cultural Theory*, ed. Neil Leach (New York: Routledge, 1997), 182.

[13] Murray Edelman, "Space and the Social Order," *Journal of Architectural Education, Politics and Design Symbolism*, 32, no. 2 (November 1978): 3.

[14] Ibid.

[15] Eco, "Semiotics of Architecture," 192–196.

[16] Ibid., 183.

[17] Ibid., 184.

[18] Ibid., 190.

[19] Ibid., 194.

[20] Ibid., 193.

[21] Donald, *Imagining The Modern City*, 13.

[22] Ibid., 18.

[23] Ibid.

[24] Eric Gordon, *The Urban Spectator: American Concept Cities From Kodak To Google* (Hanover, NH: Dartmouth College Press : University Press of New England, 2010), 15.

[25] Ibid.

[26] Ibid.

[27] Ibid., 16.

[28] Ibid.

[29] Ibid., 17.

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CHAPTER 5:
REPRESENTATION AND INFRASTRUCTURE

Algorithmic infrastructures are the software operations that exist to bring the city to life, operationalizing the networks of the city to connect their pieces into a functioning whole. It is useful to imagine them as existing somewhere between visual representations of familiar infrastructure and the code that governs how the moving parts of the videogame city inter-operate. Algorithmic infrastructures in videogame cities animate the world with the systems, facilitate movement, and produce and react to the player's interaction with the space. Their contribution to citysense is derived from philosophies of urbanism concerning the development of networked computer infrastructures as a decentralization and de-spatialization of urban processes. Infrastructure—which has come to emphasize systems of support—emerged from centralized public improvement.[1]

The rise of networked information and communication technologies (ICTs) such as the computer, fax machine, and internet introduced a new conception of the form and function of the city.[2] Information-processing activities influenced the economic and social components of the socio-cultural order of the city that, in turn, impacted its architecture and spatial organization.[3] Like real cities, videogames require both physical and informational infrastructures. Instantaneous algorithms control the processes of the game, while time-and-space dependent algorithms occur as the game is played. We can find parallels to this kind of coordinated (or at least inter-operating) urban infrastructures in the multitude of functions written into the code that occur simultaneously as the player swings Spider-Man through Manhattan: level geometry is drawn, web-swingable surfaces are rendered, pedestrians are placed and animated, the locations and action of crooks and thugs are generated, combat results are calculated, and sound effects and music are played. All of these processes are networked together by code and experienced while playing. According to geographer Matthew Gandy, landscape and infrastructure can be put into close dialogue when we

consider the experiences of the two domains.[4] As we experience the city by moving through its space, its infrastructural networks contribute to our sense of what kind of place it is.

Cities of Networks

Infrastructure can be broadly divided into three categories: utilities, transportation, and information.[5] The infrastructure of real cities and game cities are necessarily different, but understanding real urban infrastructure provides a foundation for examining how virtual infrastructure is used.[6] Road building and sanitation were among the first projects of public works, supporting the well-being of the populace with networks for the movement of military troops and the separation of waste and potable water. Coordinated infrastructural systems arose first from the need to move water for agriculture in the Neolithic era, but evolved to serve potable water and remove waste in the cities of the Bronze era that followed.[7] Mohenjo-Daro (2500—1900 B.C.E.), for example, was a large settlement that used a network of over 700 wells for domestic demands and both private and public baths.[8] According to the architectural record, during the same period the Sumerian city of Eshnunna had built a system of exposed brick sewers connected to private residences.[9] This infrastructure meant understanding the physical laws governing water movement, construction techniques for the materials at hand, and the requirements of the community. Though not always successfully executed, the Romans demonstrated their knowledge of hydraulics by building smooth and stepped chutes, cascades, and dropshafts in their aqueducts.[10] The Roman aqueducts, sewers, and roads were not only a massive engineering undertaking, they were also the product of political administration, management, and coordination.[11] In 1808, Secretary to the U.S. Treasury Albert Gallatin, who recognized the importance of these coordinated systems, wrote that it was the government's responsibility to build "good roads and canals" to "shorten the distances, facilitate commercial and personal intercourse, and unite, by a still more intimate community of interests, the most remote quarters of the United States."[12] Similarly, urban revitalizations projects such as Napoleon III's 1851 commission of Baron Georges Eugene Haussmann and J.C.A.

Alphand's plan for Paris centered on infrastructural issues related to public health as a government mandate: clean water, sewers, development codes, and street improvements were all part of the well-being of the city's citizens.[13] This undertaking was the beginning of a period in which Western cities attempted to standardize and centralize infrastructure, raising questions of how to invest in and regulate these services.[14] The private sector developed telegraph, gas distribution, telephone, electricity, and streetcar/tram urban networks.[15] These were both products and catalysts of a new kind of urban development that saw a greater number of Western cities expand outward into residential suburbs. Historian Steven Graham also notes the impact of standardized concepts of space and time, which related the connected networks to the expansion of the built environment.[16] Following World War I, the application of Frederick Winslow Taylor's principles of scientific management to rational organization and mass production and distribution prompted a paradigm of exploiting networked infrastructure. National systems of highways, rail, communications, and energy were built.[17] These transitions were profoundly intertwined with cultural and philosophical changes, affecting notions of space and time, speed and culture, and technology and government.[18] These homogenous networks impacted urban planning movements in the mid-twentieth century, which saw the need for unified and coherent cities.[19] Much like the design of videogame cities, which require everything to be built concurrently, these plans were designed to overcome the 'tyranny of space' resulting from disconnected systems.[20] Videogame worlds strive for rationality because it ensures algorithms do not conflict; bugs in the software would break both the function and illusion of the game.

Critics of modernism's vision for the centralized urban plan recognized the difficulties of putting these unified ideas into practice. British historian Reyner Banham, looking at the failures of Los Angeles's development in the face of an individualistic population resistant to encroaching infrastructure, posited an alternative "Non-Plan" that addressed the competing interests of government agencies, interest groups, and individuals.[21] Banham's lasting contribution to the conversation about networked infrastructure was his

concept of the four *ecologies* of Los Angeles.[22] The authors of *The Infrastructural City: Networked Ecologies in Los Angeles* used Banham's ideas in conjunction with geographer Anton Wagner's *städtische Landschaft* (urban landscape) to illustrate and critique the contemporary city in terms of *network ecologies*—"a series of codependent systems of environmental mitigation, land-use organization, communication and service deliver."[23] Their work considers the hypercomplex systems "produced by technology, laws, political pressure, disciplinary desires, environmental constraints and a myriad other pressures" that exist through feedback mechanisms.[24] The lessons of network ecologies have application to videogames, which also operate as cybernetic systems slave to the pressures of their governing code. While the architecture of 3D models in space give shape to the city, the ecologies of algorithms establish differing urban experiences game to game. They are designed around particular needs, often directly related to the player's embodiment as a thing interacting with the space. There may be similar infrastructure underlying an action shooter, arcade racer, and superhero brawler, but it is the differences, as Lefebvre notes, that give cities their specificity.[25]

The Invisible City

Of course, it was not only the rise of computers that led to conception of the city of networked infrastructure. Lewis Mumford used the term Invisible City to describe the "de-materialization" (or "etherialization") of existing institutions in underground cables, pipes, electronic transmissions, and radio waves.[26] Relating back to the reoccurring theme of the material/immaterial spectrum, Mumford's Invisible City highlights the importance of physical space when the support structures disappear:

> *"The visible city then becomes the indispensible place of assemblage for those functions that work best when they are superimposed one on another or within close range: a place where meetings and counters and challenges, as between personalities, supplements and reduces again to human dimensions the vast impersonal network that now spreads around it."* [27]

Lefebvre, in his 1970 book *Urban Revolution*, described the urban as a "virtual object."[28] It is a possibility space consisting of processes that give rise to the city in different forms. And, just like the immaterial city and the Invisible City, it requires a different language to describe how it operates. Perhaps the most useful descriptor comes from sociologist Manuel Castell's *space of flows*. The idea comes from Castells' 1989 book *The Informational City*, which is concerned with the way information technology operates on a global scale and how it might shape our understanding of cities. Though situated in the early era of networked computing, it recognized the immense contributions computers would have in developing economic practices. For Castells, the city was primarily a socio-economic force that began to shift from an industrial to informational mode of development.[29] In the process, the city is revealed as a spatial logic that emerges as a result of information-processing activities.[30] *Spaces of flows* exist when the output of information processing is more information; interdependent spaces form new relationships and arrangements. Videogame cities in particular demonstrate this kind of feedback loop. Their component systems—everything from player statistics and controller input to programmed behaviors and scripted events—feed back into each other through circulating systems of algorithmic infrastructure that build the city. It is in these spaces of flows that the player experiences the specificity of city. Even though the algorithms are invisible, it does not mean they cannot be seen. They just require a new way of looking. Lefebvre used the term "blindness" to describe the urban field:

> *"The urban is a highly complex field of tensions, a virtuality, a possible-impossible that attracts the accomplished, an ever-renewed and always demanding presence-absence. Blindness consists in the fact that we cannot see that shape of the urban, the vectors and tensions inherent in this field, its logic and dialectic movement, its immanent demands. We only see things, operations, objects (functional and/or signifying in a fully accomplished way)."* [31]

Thus, our view of the urban, of invisible vectors, hidden infrastructures, and network ecologies is dependent upon finding the tangible artifacts that contribute to the city's dynamics. One method of analysis for the videogame city would be a software studies

approach, looking at the actual code of the game. Much like looking at building codes, or waste disposal network plans, a certain level of intention can be ascertained from the designers' work. But, in the same way that the city is in part defined by our experience of it, immediate observations of the world around us excavate the invisible city. Common design patterns in polygonal open-world game cities illustrate the function of both *representational* and *algorithmic* infrastructure.

Representational and Algorithmic

Videogames depict certain infrastructures while ignoring others. **SIMCITY 2000** (Maxis, 1993) has a network of water pipes under the surface because it is designed as a management challenge meant to be visible to the player. But the cities of **INFAMOUS** (Sucker Punch, 2009), **ASSASSIN'S CREED III** (Ubisoft, 2012), and **MIDNIGHT CLUB 3: DUB EDITION** (Rockstar San Diego, 2005) have no need for potable water systems because it is not something that the player interacts with directly or indirectly. In these cases, *representational infrastructure* abstracts urban systems to serve the aesthetic experience of the city. Knocking down a power line in **GRAND THEFT AUTO: SAN ANDREAS** (Rockstar North, 2004) doesn't cause the neighborhood to lose electricity, but they are an important part of the cityscape. Streets—the most visible infrastructure—are perhaps the most significant part of videogame city space while other infrastructure such as sewers and subway tunnels become places for play. On the other hand, videogame cities need *algorithmic infrastructure* to operate the artificial intelligence in crowds and cars, determine how missions begin and end, and to build a world through which the player moves. Like it has in physical cities, the "elaboration" of networked infrastructure extends and intensifies[32] as is readily apparent in new generations of videogame technology enabled by different platforms.

Algorithmic infrastructure is often influenced by available technology. Graphics engines, for example, can necessitate certain kinds of design. If a whole island in **GRAND THEFT AUTO: VICE CITY** (Rockstar North, 2002) can be loaded dynamically as the player moves through it then missions can be designed that allow further distances of traversal.

Otherwise, frequent loading screens would interrupt the action of the game. Other processes can be activated as well, including the appearance and paths of automobiles and pedestrians. Yet, much like our real world, these systems do not always function as intended. Driving quickly from Ocean Beach to Vice Point, the player might notice geometry or texture pop-in, which is when the game fails to load assets into the environment before the player is in the space causing the objects to appear in front of them as if from nowhere. Or the player may arrive before the traffic patterns have been set in motion, leaving the streets unusually empty. However, following the logic of increasingly interconnected networks benefiting spatial arrangement, sophisticated technology enables complex spaces. Thus, the seams in the set that were evident in **GRAND THEFT AUTO: VICE CITY** were more tightly sewn in **SAN ANDREAS**, and all-but removed in **GRAND THEFT AUTO IV** (Rockstar North, 2008). Whether this makes for a better or more realistic city is debatable, but it is worth looking at the impact of computer processing and graphics technology on the algorithmic infrastructure of game cities.

Videogame City Infrastructure

There are two primary ways that city infrastructure is manifested in games: algorithmically and representationally. Algorithmic infrastructure either governs the function of the videogame city or operationalizes infrastructural processes. Representational infrastructure, on the other hand, concerns the physical constructions or visual depections that convey these systems. Sometimes the two exist side by side, such as roadways and traffic algorithms that govern car behavior or the train tracks and stations that support a functioning subway. As an example of a case in which infrastructure is visually represented but does not feed back into the game, powerlines or telephone poles can usually be knocked down without causing blackouts or severing communication systems. Likewise, the architecture of a sewer system may have been designed for a game in which underground pipes serve as a mode of travel even if there is no simulated sewage. When there is an operational piece of infrastructure that takes a representational form (or vice-versa), it is

considered algorithmic infrastructure. Videogame cities use infrastructure based on the needs of the game. They get used to animate the world, refer to real world expectations, and even serve as locations in which play takes place. Because of the way these interrelated forces are entangled, it is most relevant to start with broader infrastructural concepts and then break down how they are enacted as algorithims and representations.

Roads, Vehicles, Traffic

The term "automobility" refers to a combination of factors that produce the car's relationship to the city. It is often used to discuss the culture of driving in relation to the function of everyday life: commuting to work, running errands, sitting in traffic, and the organization of time and space through the capabilities and limitations of the automobile.[33] The modern city is dominated by the motor vehicle that structures behavior and produces an "aesthetic experience" of the city both inside and outside the car.[34] Drivers' intentions become embodied in the car, which is capable of interacting with the world in certain ways. The automobile is intimately related to the infrastructure of the city, which dedicates enormous resources to managing traffic that moves people through and across large distances. Not all videogame cities contain cars, of course. In a historical setting like early 18th century Havana in **ASSASSIN'S CREED IV: BLACK FLAG** (Ubisoft Montreal Studios, 2013) only time traveling could explain the appearance of the internal combustion engine. Likewise, a fantasy game set in the future might envision an era lacking cars. However, from the 1930s Chicago-NYC hybrid of **MAFIA** (Illusion Softworks, 2002), through **GRAND THEFT AUTO: LONDON 1969** (DMA Design, 1999) and the modern Hong Kong of **SLEEPING DOGS** (Luxoflux Corp, 2012), automobiles and traffic are a highly visible and playable infrastructure.

There are a number of systems that function together to fill open-world cities with cars. These, of course, change depending on the function of the vehicles (a racing game would be different than a third-person action game) but they serve similar functions: to place cars in the world, set them in motion, and give them behavioral characteristics. A Game

Developer Conference Europe talk by Jan Kratochvíl of 2K Czech (formerly Illusion Softworks) provides insight into the system the studio developed to spawn cars into the world of **MAFIA 2** (2K Czech, 2010) and set them along driving paths.[35] The experience of the city, this system assumes, is centered entirely on the player's immediate surroundings. Because the player's navigational experience is not fully scripted, the algorithms that govern cars appearing in the world are designed to predict where the player might go and what they might see.

Figure 31: Early American roads in Mafia

Because of memory limitations, the designers of **MAFIA 2** (and the similar games before it) must thoughtfully spawn and despawn vehicles based on the probability the player will encounter them. These systems have increased in complexity in games like **MIDNIGHT CLUB: LOS ANGELES** (Rockstar San Diego, 2008)**, DRIVER: SAN FRANCISCO** (Ubisoft Reflections, 2011), and **GRAND THEFT AUTO V** (Rockstar North, 2013), which allow the player to zoom out from their immediate location, view the city from a bird's eye view, and warp themselves to a new point in the city. Vehicles, like other objects in the game city, appear as needed. In a confined space, like the small, short blocks of Liberty City in **GRAND THEFT AUTO III**, the game is not always drawing long distances, which means that cars

generally only need to be rendered in close proximity to the player. It also means that vehicles are often spawned around a corner, hidden behind other buildings so that the player does not see them pop into existence. Contributing to the illusion of the city is the belief that objects moving about it came from one place and are going to another. Of course, as in all cases reliant on the suspension of disbelief, there are tolerances for the seams showing, but as technology enabling the manipulation of more involved objects and behavior has improved, a car that suddenly appears on screen would be more out of place in a newer game. Because mobilities make parts of the city visible at different rates and vantage points, design decision that work in one game may not work in another. The protagonist of **JUST CAUSE 2** (Avalanche Studios, 2010) can gain an aerial perspective on Panau City, having parachuted into it from a helicopter or having scaled a building using the grappling hook. From above, more roads are visible. It becomes quite evident, given the massive scale of the game (whose large landmass is openly traversable), that the designers likely decided not to concern themselves with the verisimilitude of traffic observed from far away. However, in **DRIVER: SAN FRANCISCO,** it was of the utmost importance that vehicular traffic be managed effectively because the game is about crossing large distances at breakneck speeds. And not only does the player drive across the space, they also possess a skill that extracts their consciousness from the car they are driving and moves it to another car on the map. Eventually, the player can "Shift" from a sedan in Fisherman's Wharf to a truck in the Financial District at will, requiring a high level of artificial intelligence to manage the vehicles surrounding any given area.

While we think of traffic as implying gridlock, cars rendered immobile due to density, the term traffic actually means the movement of vehicles along a roadway.[36] Traffic, whether Los Angeles or Los Santos, involves both physical and virtual realms.[37] Stop lights, road signs, and painted lines assist drivers around the city. Their purpose is to manage behavior both locally so that people don't crash into each other and also globally to organize the movement of traffic as a large mass. A sequence of traffic lights along a city boulevard turn

red not just to let cross-traffic pass, but to manage the number of cars in any parcel of road, making room for any vehicles that are attempting to merge into the space. When building their city, **MAFIA 2**'s developers created a roadmap that described how AI cars should navigate each stretch of road, and assigned different behavior characteristics to the cars to produce the illusion of a dynamic populace with free will. Traffic management infrastructure helps justify the behavior of vehicular AI in videogame cities while also ensuring that cars are not constantly crashing into each other or the player. In **GRAND THEFT AUTO III** there are very few cars on the road at a given time and the player might sometimes drive for blocks without seeing a vehicle. Even if a player crosses an intersection when their light is red, they are not contending with a lot of cross-traffic that might crash into them and impede their progress. In **DRIVER: SAN FRANCISCO**, on the other hand, because the player is racing at high speeds it is crucial that they be able to read and prepare for traffic patterns, especially that of an approaching intersection.

With rare exception, the precedent has been established that players do not need to obey traffic laws in their game cities. In examples like the **GRAND THEFT AUTO** series, it might be assumed that the player, as a criminal or person undercover, lives outside the law. The series established a convention that other games followed, though in a newer game with a high level of verisimilitude like **GRAND THEFT AUTO V**, the inattentive police prove glaringly disconnected from the flagrant law-breaking. In the original **MAFIA** (2002), Illusion Softworks forced the player to behave within reasonable confines of the law. Not only were they not supposed to brandish a weapon in front of the police, they had to drive the speed limit and stop at traffic lights so as not to raise suspicion. The simple behavior of divers in **SAINT'S ROW: THE THIRD**'s city of Steelport can be observed by following an individual car. They seem to randomly traverse subsections of the city, responding to traffic lights and stop signs, but are prone to make sudden U-turns as responses to interruptions in their patterns, be they at a dead-end or in the middle of a busy street. They drive slowly, perhaps as a design choice that grants more room for the player to maneuver around them. Similarly

handled to the description of **MAFIA 2**, vehicles remain in the world so long as the player remains close to them; down a long stretch of road it is possible to see a vehicle vanish from the system. Of course, driver behavior is reasonably abstracted, since few players will ever pay close attention to the intelligence patterns they seem to follow. Even in its most simple implementations, the presence of vehicles moving around the city contribute to the sense that it is behaving in a familiar way.

Sidewalks and Pedestrians

We don't tend to consider pedestrians themselves as a part of the infrastructure, but their actions are made possible by different related infrastructures that afford movement. It is implied that these characters are the residents of the city carrying on with their everyday routines, living in the world that happens to be occupied by the player. The double meaning of routines here is key to the illusion of people filling the streets. On the one hand, we view only small slices of the lives of the strangers who surround us in the city. Carrying a full Publix bag over their shoulder, we might infer a man has just gone to the grocery store and may even picture him in the frozen food section selecting a bag of baby peas. Or we may infer the woman wearing the rubber clogs and chef's pants works in a nearby restaurant. When we do this, we are envisioning people going about their daily lives, using the streets to move from one place to the next. We give little thought to these transient routines and generally assume that others pay no mind to ours. As the movie **THE TRUMAN SHOW** so well illustrates, others' patterns function as the backdrop to our own behaviors; the streets are filled with what might as well be movie extras.

SAINTS ROW: THE THIRD's streets are populated with the typical kind of open-world city pedestrian whose activity is not directly concerned with the player. Similarly to the vehicle algorithms, programming routines enact pedestrian routines. Sets of functions dictate the complexity of the artificial intelligence that determines the behavior of the people on the street. On a film or television set, the director and her assistants tell the extras how to proceed along the sidewalk in the background of a shot. They follow a scripted sequence

intended to make their movement look natural, disguising the wholly artificial context that sets them in motion. In games, functions might instantiate a character in the space and then provide a path on the sidewalk for them to follow. Like a **TRUMAN SHOW** extra, they know when they will be in the scene, how to hit their marks, and become irrelevant once out of sight. Most of these actions occur in public, requiring avenues for movement. Pedestrians are supported by sidewalks, alleyways, crosswalks, plazas, shopping centers, and other public places that guide their movement. They can be programmed to use elevated walkways, to board public transportation, and ride escalators. In public, their lives become intertwined with urban activity: they encounter and often greet each other, become targets of crime and violence, cross the street permitting traffic, and abstractly engage with the same world the player is experiencing.

Pedestrians serve a significant role in the **ASSASSINS CREED** series of games. Not only do they representationally suggest a lively city, their density on the streets becomes an important part of the player's ability to move throughout the city unnoticed. In the role of an assassin, players spend much of the game trying to avoid being detected by members of the opposing faction. The series of games depicts numerous cities: Damascus, Jerusalem, and Acre in the first game; Florence, Venice, and Tuscany in the second; and Boston and New York in the third. In each of these cities guards (both military and private) patrol the streets looking for suspicious behavior. The parkour mechanic that the game series is known for allows players to rapidly traverse the city undetected. But when they are confined to the streets, the presence of pedestrians comes into play. Often, missions in these games will ask the player to eavesdrop on a conversation, pickpocket someone carrying important information, or tail a suspect until they've arrived at a suitably deserted location where they can be assassinated in private. The player is given the ability to blend into the crowds of pedestrians on the street, as indicated by a visual effect that brightens the player's body—so as not to be spotted by their target. Because of this mechanic, locations in **ASSASSIN'S CREED** cities that are highly populated, such as city squares and frequently trafficked streets,

become just as important as the quiet alleyways that lay outside of the patrolling soldiers' view.

Figure 32: Ezio blends into the crowd

Subways

A feature of cities that has become a part of their image is the presence of forms of mass transportation. Buses, subway/elevated trains, and trams are both representational manifestations of urban expectations as well as often a functional means for getting around the city. As a part of this network, the stations that support public transportation also contribute to the sense of the city. **TRUE CRIME: NEW YORK CITY**'s (Luxoflux, 2005) implementation of the New York Subway system uses it as an alternative to driving that allows players to warp across the map. Players enter a generic subway station from the surface and, from the platform, choose the station they would like to travel using an MTA map. The game automates the process of boarding the subway car and then loads into the next area. This can be contrasted with **GRAND THEFT AUTO IV**, in which the player enters a station and waits on the platform for a train to approach. Once they board, they can choose to either experience the full ride (and can choose from multiple interior and exterior camera angles to watch) or press a button to skip to the next station. However, there is no way to skip to a specific station along the route, thus riding the subway is a slower mode of transportation than other more accessible options. Choosing to ride the subway in **GTA IV**

requires dedication to at least the process of boarding and waiting, which helps maintain the tenuous spatio-temporal relationship of subway riding. As Marc Augé observes, "Subway riders handle nothing more than time and space, and are skilled in using one to measure the other."[38] Thus, in the case of **TRUE CRIME: NEW YORK CITY**, the infrastructure disappears as it becomes a tool for near instantaneous movement, while in **GRAND THEFT AUTO IV** it at least remains partially visible.

Walking into a Metro station in **FALLOUT 3** (Bethesda Softworks, 2008), players can often find a map of the former train routes. D.C.'s rail map is done in the style of Harry Beck's design for the London Underground map, eschewing geography to present a legible topology. And yet, these maps are nearly worthless from a game perspective because the player must traverse the space on foot with distances that correspond to the surface world. What was once a well-planned infrastructure that supported the passage of thousands has become disorienting twisty corridors only traversable by the brave. With old passages blocked by debris and new channels opened up by collapsed tunnels, the Metro of **FALLOUT 3** reveals the hidden connections of subway infrastructure that are normally neatly organized as colorful routes. The Metro here carries the rhetorical weight of a significant piece of infrastructure that has been left in ruins while also providing a space of architectural to play in.

Buses

Though I have excluded city management games like **SIMCITY** and **CITIES IN MOTION** from this work, there are simulation games that embody the player as an actor in the city. **CITY BUS SIMULATOR 2010** and **BUS-SIMULATOR 2012** place the player in the role of a bus driver, following prescribed routes to pick up passengers while maintaining their schedule. This vantage point gives insight into the inner workings of the city in a way our typical experience does not. The life of the bus driver is circuitous, witnessing the ebbs and flows of the city throughout the day in a way that riders with a single destination (and a prescribed riding time) do not.

Figure 33: The life of a bus driver.

In **GRAND THEFT AUTO V**, one of the mid-game missions focuses on a "vulture capitalist" that becomes the player's assassination target. He is described as a "tight-fisted billionaire" who rides the bus every day, so the player, as the character Franklin, ends up taking over the bus route to trap him. As a part the ruse leading up to the assassination, Franklin drives the first part of the route, picking up passengers waiting for the Los Santos bus. If the streets are particularly crowded when the player begins the mission, the large, lumbering bus is much more difficult to maneuver than the speeding cars the player is accustom to. A prompt on screen presents a button the player can press to view the interior of the bus, and doing so triggers comments from the riders who deride the stereotypical dirty conditions of public transit. After a few stops, the assassination target, dressed in a fine suit, tries to board but recoils when asked to pay the "hiked" $1.50 fare. As an alternative, he steals a woman's bicycle and rides off, shouting back at her, "blame it on the city!" to justify his behavior. (The player then races after him in the bus and runs him over to complete the mission.) This mission reveals a tiny sliver of the city's public infrastructure and is the only time the player can drive a bus without it being considered stolen. The bus is capable of exposing issues of maneuverability on the city streets, evokes the misplaced generalization that public transit is unclean because of those who ride it, and that its passengers are subjected to the forces around them (sometimes in the hands of a reckless player).

Public Works

Sewers have long been common location in games. From the purview of the Mario Bros.' profession, to the domicile of the Teenage Mutant Ninja Turtles, to Sewer Sam's accidental encounter with Russian Submarines in his namesake 1983 game, this subterranean place of play has held danger and surprises. The real purpose of sewers is to manage waste and run-off water, carrying the city's discharge in pipes hidden from sight. In modern sewer systems, waste is contained in smaller sanitary sewer lines that hook up to treatment plants for processing. But because urban sewer systems tend to be much older, the human-sized navigable sewers that populate our imagination are from an era when household sewage and storm water run-off were combined into a single stream. New York City's prominent visibility in media has molded a stereotype of the sewer as at least human height, and sometimes even as big as a subway tunnel. This image of the sewer as not only a place of sludge and rats but also of people, emerged during the modernization of subterranean infrastructures in the 19th century.[39]

With the exception of simulation management games, it is rare for game sewers to be about the sewage themselves. As David L. Pike comments in his essay on the sewer as a culture form, "to place anything in the sewer is to define it as the waste product of the world above it."[40] In particular, this detritus often takes the form of monsters and baddies like in the cases of **SEWER SAM** (Interphase Technologies, Inc., 1983) or **RAGE** (id, 2011), and "cleaning" the dungeon-like sewers means eliminating these threats. The sewers too can characterize heroes such as the figure of the "street urchin" that forms the basis of the character Vaan in **FINAL FANTASY XII** (Square Enix, 2006).

Not only are sewers places of monsters, they offer an escape for other cast-outs. Because sewers are part of the fabric of the city, reaching its every nook and cranny, its occupants are implied to have similar pervasive access such that protagonists and antagonists alike can move about the city undetected. It also means that these are networks that can be intercepted—taking the fight to the source. Not only are sewers often invisible, but they can

provide access to other invisible parts of the city. In **BATMAN: ARKHAM CITY**, a Subway maintenance access hatch in the industrial district provides access to the sewers that in turn provides access to "Old Gotham"—the forgotten remnants of the city's past that lay buried beneath new construction. Sewers, like subways, are tools of underground excavation that can perform archeological work.

Garbage trucks debuted in the second **GRAND THEFT AUTO** game on the PC, and functioned primarily as a heavy, well-armored vehicle that could defend the player from other cars. It was not until **GRAND THEFT AUTO: LIBERTY CITY STORIES** (Rockstar Leeds, 2005), that the Trashmaster truck was officially integrated into a game mission, serving as a side activity in which the player picked up trash to earn money. In **GRAND THEFT AUTO IV,** the player operates the truck in order to collect stolen diamonds stashed in trashcans around the city. In **GRAND THEFT AUTO V** the trash truck is used during a heist mission to ram an armored truck because it is both durable and would not attract attention if idling in an alleyway. Though their use is limited, garbage trucks lead interesting automated lives. The logic concerning the behavior of Trashmasters across **GTA** assigns them to areas of the cities and, in later games, even has them run at specific times of day. For example, in **GRAND THEFT AUTO IV** trucks are scheduled to run on Tuesdays and Fridays. Across Liberty City, Vice City, and San Andreas they often can be found parked near industrial areas, airports, and junkyards. The presence of waste management vehicles and dumps serves as a reminder that there are other people "living" in the city whose lives do not revolve around the player.

INFAMOUS (Sucker Punch, 2009) is all about the city's power grid. A mysterious explosion has wreaked havoc on Empire City and has given the protagonist Cole MacGrath the ability to absorb electricity from objects in the city such as lampposts, telephones, circuit breakers, and transformers often found on rooftops. However, the player finds themselves in a weakened state in places where the power grid has gone down. As such, they must repair underground substations in order to restore electricity and regain Cole's superpowers. Cole's

ability to move through the city by quickly climbing the sides of buildings and by jumping to the ground with no consequence is amplified partway through the game when he learns how to slide along power lines like a skateboard grind. With this ability, the individual cables that comprise the infrastructure of power are rendered more visible.

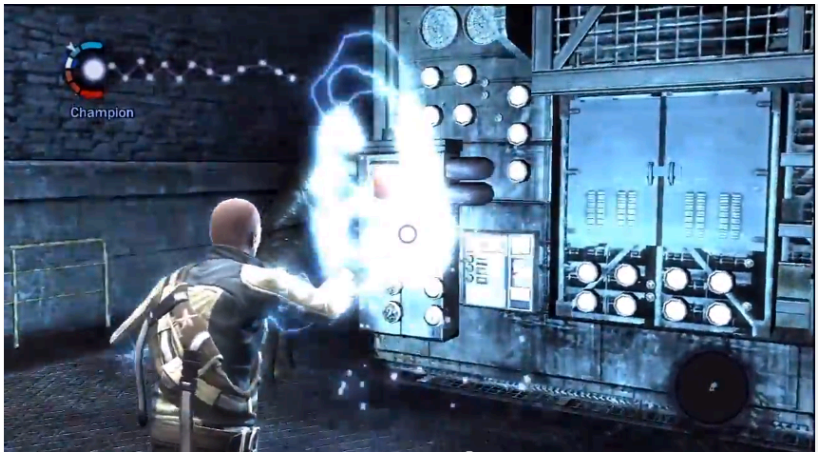

Figure 34: Cole uses his superpowers to recharge a generator

Restoring power to the city in order to help reconnect its separated neighborhoods is one of the primary goals of **GRAVITY RUSH** (SCE Japan Studio, 2012). The game takes place in the city of Hekseville, which resides high above the planet's surface on a giant pillar. Hekseville is under attack by another dimension, manifesting itself not only as invading monsters but also as gravity storms that have scattered parts of the city. Heroine Kat's primary task of restoring the city is often accomplished by collecting crystals that power pieces of the broken landscape: the fountain in the town square, a landmark drawbridge, an elevator that helps city residents reach tall buildings, and the train system that connects city districts. The energy needs of the city are also represented in **SAINTS ROW: THE THIRD** (Volition, 2011). Because its group of rival street gangs have grown to function like multinational corporations, their headquarters not only occupy the skyscrapers of Steelport, but other territories around the city. One such location is the Burns Hill nuclear reactor, occupied by a gang of techno-hackers called the Deckers. As is the case for other visible infrastructure in Steelport, the public function of the power plant has been taken over by private interests; rather than supplying the city, Burns Hill has been converted into a massive

computer server farm. While players would rarely question where a videogame city (much less a real world city) is getting its power from, the power plant's alternate use and dominating presence in the landscape raises awareness for the function it is supposed to serve.

Alternative Infrastructures

Thus far, the infrastructures I have explored are representations and adaptations of those of our modern physical cities. But just as the real city has infrastructure games have no need for, so too are there unique networks that support the videogame city. Often times, players in the game city are operating outside of traditional infrastructure or are appropriating it in new ways. Likewise, things that may not seem like infrastructure are transformed through play: beams jutting out from the side of a building or gargoyle statues establish a network of grapple points for Batman's superhero gadgets. Examining these infrastructures not only helps us understand the design of games, but also allows us to reflect on alternative infrastructures that may exist in the real cities of our world.

Forms of motility (the method of movement) influence the design infrastructures of mobility (being able to move). Streets permit the movement of cars and bikes on roads, while people occupy the sidewalks. Given that these are our primary modes of moving through the city, it is not surprising that they attract much of our attention. But what does a road mean to Spider-Man? Peter Parker's primary passage pertains to permeable places. His interest in streets comes not from their immediate utility as paved surfaces, but from the gaps they create between buildings from which he can webswing. The infrastructure of movement co-opts the comic book Manhattan's buildings to become about the spacing of vertical flat surfaces that permit quick, purposeful webswinging. And, just as trying to drive off-road demonstrates the limitations of the automobile, trying to move through Central Park in **ULTIMATE SPIDER-MAN** (Treyarch, 2005) with nothing to swing from exposes the limitations of the friendly neighborhood webhead.

Existing infrastructures of physical cities that have been further realized in videogame cities are mechanisms for controlling individuals. These emerge out of information systems that connect behavior monitoring with enforcement: security cameras scanning vehicle license plates to tip off police as to outstanding warrants, for example. Because games are able to integrate these systems, everything can happen automatically (and usually predictably). Popularized by **GRAND THEFT AUTO**'s "wanted level," notoriety systems respond to player action with punitive measures. Their design emerged from the need to have multiple states of antagonism between player and computer, particularly in open world games in which the player is not always under attack. In **DRIVER** (Reflections Interactive, 1999) the player is an undercover police officer taking missions in Miami, New York City, L.A., and San Francisco for a mob boss, which puts them under the scrutiny of the other police in these cities. A "felony" meter tracks legal transgressions: everything from running red lights to driving on the sidewalk and smashing into police vehicles. Good driving is rewarded by making the game easier, while poor driving is punished by making the police more aggressive. The representational quality of these systems positions them as beneficial to an imagined public (implying that maintaining law and order is necessary even in a virtual city). Functionally, however, they directly relate to conflict and challenge in game design.

Another similar system of control is best illustrated by the "trespassing system" used by **THE SABOTEUR** (Pandemic Studios, 2009). Set in Nazi-occupied Paris, the game governs the behavior of the player (as a member of the resistance) in the city by enforcing spatial boundaries. In the game, a military infrastructure establishes areas that are off-limits (represented by walls and barbed wire) while also watching the player's behavior from guard posts and watchtowers. These military structures of control are codified into algorithms that enforce the representational rules that have been surfaced to the player in elements of the game's user interface. Trespassing boundaries, guards' lines of sight, and even a suspicion-radius around the player are clearly visualized on the game's onscreen mini-map. Thus, the

player can trespass by disguising themselves as a solider and behaving normally so long as they are not near another solider that might see through the ruse. Operationalized enforcement of improper behavior heuristics takes existing infrastructures of control to their natural procedural extremes, demonstrating the cybernetic integration of videogame city systems.

Figure 35: Trespassing zones in The Saboteur

Videogame cities are able the push the boundaries of the kinds of "Informational Cities" described by Manuel Castells.[41] Fundamentally, they are information spatialized through virtual representation. Videogame cities are composed of information about where buildings are placed and what they look like, how cars and pedestrians behave, which territories are controlled by which gangs, how police respond to shots being fired, and where groups of thugs harassing an innocent civilian appear so that the superhero can save the day. Because they rely so heavily on the interplay of algorithmic procedures, they follow the patterns of urban development often ascribed to information and communication technologies (ICTs). Most notably ICTs innovate processes rather than products.[42] So, while **GRAND THEFT AUTO V**'s most visible improvement seems to be the visual detail of a sprawling metropolis, its real major accomplishment is the complexity of interconnected infrastructures that animate the city. Faster processors, increased memory, and improved

storage all afford new complexity from creative designers. These new technologies are not always superior, of course. **TRUE CRIME: NEW YORK CITY**'s attempt at geographic realism was a detriment to players' expectations for open world navigation. And the artificial barriers that restricted players from exploring other islands or regions in the **GRAND THEFT AUTO** games leading up to **GTA V** served to not only guide players through the game but also to encourage the development of familiarity with city neighborhoods through prolonged exposure and repeated use.

The purpose of examining the relationship between physical and videogame city infrastructure is to employ each as a lens for asking about the nature of cities. Though infrastructure finds itself under the umbrella of the representational order, it functions in the constitutional and experiential frameworks as well. It often has a built form, manifested as great public works projects or tangles of criss-crossing wire. It expresses the needs of the people who require mobility, a healthy environment, avenues for economic exchange, security, and communication. And, as evidence by this chapter, infrastructure contributes to citysense; our impressions of a city are explicitly and implicitly informed by experiences of their interrelated systems.

Thinking about the defining nature of infrastructure with regards to specificity, we can look at a recent example of information technology helping to define a city. On March 30, 2011, Kansas City added to its reputation for jazz and blues and barbeque a new marker of fame: Google Fiber. The technology giant selected Kansas City as its test market for gigabit broadband internet which would provide free basic access and paid high speed access to all residents of the community. Though not as visible as the London Underground, the aqueducts of Los Angeles, or the Parisian sewers, pervasive internet access could become Kansas City's defining piece of infrastructure (its status in an increasingly privatized world of public utilities is a whole separate matter). How (or even if) it will change how Kansans experience their city is yet to be seen, but it's possible that reliable high speed Internet access could affect personal communication, economic transactions, the transfer of knowledge,

recreation, and even the integration of multiple digital infrastructure systems. The forthcoming game by Ubisoft **WATCH_DOGS** promises the same. Players take on the role of hacker Aiden Pearce who can control the electrical and communications grid of Chicago from his mobile phone. The premise of the game grants access to the invisible city beneath Chicago so that the player can solve problems by manipulating the environment: change stoplights to control traffic flow, black out a building to gain access, or hack into a cell phone to trace a person. Like the **ASSASSIN'S CREED** series before it, Ubisoft's design considers the complexities of urban density and finds within it a space for experimentation and play. These representations of Damascus, Renaissance Florence, Constantinople, and Colonial Boston use computational processing power to simulate the daily lives of masses of people walking the streets whose presence becomes a system for the player to interact with. Infrastructure supports the cities' residents, and in turn, the residents become an infrastructure themselves. Thus, not only are the systems of urban networks ripe for design inspiration—game mechanics and dynamics emerging from the interplay of these processes—their presence should be considered an inextricable part of urban experience.

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INTERLUDE: POPE SIXTUS V: LEVEL DESIGNER

Level design is experience design. It structures activity and communicates by organizing objects in space. Controlling the experience of a linear environment, like a walkthrough museum exhibit or the *Pirates of the Caribbean* ride at Disneyland, is difficult enough. So for expansive spaces to be navigable, their structure needs to be carefully considered. From Baron Georges-Eugène Haussmann's massive reconstruction of Napoleon III's Paris and John Nash's Regency London, to Burnham and Olmstead's World's Columbian Exposition Chicago and Edmund Bacon's work in Philadelphia, urban designers have undertaken massive projects centered on the ways people and things move through the city. City planners have a history nearly as old of the city itself, but it was more recently that a field of urban design had been established when Renaissance planners were able to share their systematic thoughts in print. In the 15th century Michaelangelo, Vitruvius, Alberti, Antonio Filarete, Francesco di Giorgio Martini, and Leonardo da Vinci all notably influenced the design of city spaces. But it was Pope Sixtus V who perceived moving around the city (and not just between buildings) as an experience itself.

The unified urban plan was a rarity during the early centuries in which cities developed. Most often, cities grew as aggregates in which smaller localized areas were planned and built. But a few examples of grand-scale urban design considered the city as an experience of movement and perspective. Most notably, Pope Sixtus V established in 1585 a plan for Rome that would enact large-scale urban revitalization by retrofitting the city with new streets and monuments.[1] What is most significant about this plan, and the part that relates closely with the design of game cities, is that Sixtus V thought about the composition of Rome as a matter of guided activity. The plan was meant to facilitate religious pilgrimages in the city by connecting seven churches with straight streets and marking them with monuments. Like a level designer, the Pope and his architect Domenico Fontana, wanted to establish architecture that could direct pilgrims between destinations in the city. Urban

design, in this case, was seen as a matter of moving people through a navigable and imagaeble space.

Leading up to the election of Sixtus V to the papacy in 1585, Rome had undergone a slow but steady reconstruction. The rebuilding of Rome was necessitated by over a thousand years of neglect. Following the reign of the Emperor Trajan between 98 and 117 CE, the fortunes of both the Roman Empire and Rome waned. In 334 CE Constantine had moved the capital of the Empire to Constantinople, leaving Rome as just another city. Despite a few caretakers along the way, Rome was the target of many Germanic attacks and suffered blows both physical and morale. In 1370, Gregory XI returned the papacy to Rome—which had been seated for 68 years in Avignon—to the hollow shell of a city whose population once exceeded an estimated 1.5 million people, but had been reduced to 17,000.[2] The program taken up by Sixtus V had been seeded by Nicholas V in 1450, who wanted to see Rome restored to its former glory for the benefit of the church, and carried out in part by a succession of Popes each concerned with repairing and rebuilding parts of the city.[3] The plans of Sixtus V, however, were by far the grandest and influenced not only Rome but many of the world's great cities.

Sixtus V, in his brief five year reign, put in motion sweeping changes to the composition of Rome. His ideas for Rome did not just manifest themselves in restored buildings like Basilica of St. Peter or refurbished public spaces like the Campidoglio, but rather a city-wide program designed to facilitate religious pilgrimages. In service of this, Sixtus V chose the architect Domenico Fontana as his advisor and created a plan to first repopulate Rome by providing a direct water supply, then construct a street system connecting monuments and key churches across the city with an establish aesthetic unity.[4] The severing of the aqueducts during the many sieges on Rome left the city's hills without water. Supplying over 4 million gallons a day, the sixteen mile long Aqua Felice brought water to the Quirinal, Viminal, and Esquiline Hills along elevated channels and underground tunnels.[5] Sixtus V's also implemented a program to improve health conditions by introducing garbage collection as a public service, improved drainage systems, and public wash-houses. With fresh water coming into the city and sewage leaving, Rome's population could safely develop.

Sixtus V's street, monument, and church program stemmed from a series of developments in perspectival space during the Renaissance. As Bacon describes, the

sixteenth century saw the force of interior form and building facade turned outward into public space, in which the setting of the building came to equal the importance of the building itself.[6] This was part of the Renaissance and early Baroque trend in which, as historian Paul Zucker notes, "architectural design, aesthetic theory, and the principles of city planning [were] directed by identical ideals, foremost among them the desire for discipline…"[7] The design of exterior spaces such the Piazza Annunziata in Florence, the interlocking squares of Todi, and the public monument space of Michaelangelo's Campidoglio, are examples of the ideal unifying space that Sixtus V and his were trying to capture.

In his plan, Sixtus V integrated principal straight streets to create a movement system between the seven pilgrimage churches of Rome. By clearly linking these destinations together it would be easier for pious churchgoers to navigate the city and the streets and monuments would assert the physical order of the former glory of Rome. To ensure his plans were carried out by future generations, Sixtus V erected obelisks in front of the churches which streets could connect like dots.[8] Though the form of the Piazza del Popolo was built after Sixtus V's death, the obelisk he placed there—where the three original streets radiated outward toward Santa Croce, the Campidoglio, and the Piazza Navona from the Porta del Popolo—structured the space as one of two hearts of Rome. The other heart, of course, was St. Peter's Basilica. Though the building and piazza were not completed until after his death, the obelisk that once stood in the spina of the Circus Maximus symbolized the religious and historical character of Rome. Not only did streets connect existing monuments, but monuments were modified and built-out in service of the streets: churches received refurbishment and new facades, fountains were built, and some areas saw new construction such as the Spanish Steps of the San Trinita dei Monti.[9]

It would take nearly two centuries for Sixtus V's plan to be carried out, but through his unifying design Rome developed a physical structure linking its history and present. In Sixtus V's plans, the streets connecting monuments were not merely corridors for passage, but landmarks in their own right. Not only did the plan influence Rome, but it had a dramatic impact on other cities as well. Napoleon III (through Haussmann and Alphand) implemented a similar program when restructuring Paris and its boulevards. Straight streets connecting significant buildings, landmarks, and public spaces can be found in plans (like

those unused from Christopher Wren) for the rebuilding of London, Burnham and Olmstead's plan for Chicago, and the later-implemented plans for L'Enfant's Washington, D.C. Though his time as Pope was short, Sixtus V had a lasting legacy of orienting the design of cities and architectural spaces toward traversal goals. The journey between pilgrimage churches reminds us of a videogame player navigating between missions. So, equally important as what the player is doing is how they have been embodied to move through the space.

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CHAPTER 6:
EXPERIENCING THE CITY THROUGH MOTION

The constitutional and representational orders help us describe how cities are designed and what kinds of things they're filled with, but they still seem inadequate for describing what makes cities different. Philadelphia and Savannah are not just similar in their gridded street structure, nor are they merely different because of the economic activity they support and the cultures that produce cheesesteaks in one and shrimp and grits in the other. *The specificity of these cities emerges from how we experience their constitutional and representational orders.* In particular, our interpretation of space derives from the primacy of a body's motility for seeing and creating an impression of the world, and videogames allow us to embody varied viewpoints. The *experiential order* emerges from how we move through and interact with space and form a sense of place, which can be described with a narrative-like synthesis of emplotment.

Architectural historian Edmund Bacon opens his seminal text *Design of Cities* with an emphasis on the primacy of spatial experience.[1] Space connects human bodies to larger and larger systems as our perceptions of the world deepened.[2] The *experiential* is not only our phenomenological understanding or the narratives we construct about the city, but rather our situation-in and perception-of the urban. As James Donald describes, "the *living* space of the city exists as representation and projection and experience as much as it exists as bricks and mortar or concrete and steel [...] rebuilding the living city means taking account of this other sense of space."[3] And media and game scholar Celia Pearce described buildings as a "by-product of what [architects] do," suggesting that they primarily design experiences.[4] The simple requirements of the constitutional and representational can be empowering because they allow cities to exist in a broad spectrum. But they become problematic when adopted into other disciplines. Specifically, they are a totalizing view from above that often needs to be complemented by a more grounded approach. Michel de Certeau levies this criticism on the effect of being able to perceive the whole of the city at once, as he opens his chapter

"Walking in the City" with an anecdote about standing atop the World Trade Center, looking down trying to make sense of New York City. The bird's eye view—which makes the constitutional and representational visible—removes the viewer from the experience of being a part of the city, giving them only a spectator or voyeur's insight into what makes space.[5] So when de Certeau compels us to return to the ground level to understand what makes a city unique, he is also compelling us to think about the city in terms of embodied experience; the constitutional and representational orders alone prove inadequate, particularly when comparing physical and mediated cities. Spaces of all kinds have what Bacon terms "participators,"[6] and in different city forms the participator can occupy a variety of viewpoints. So it is through *experience* that we are able to link real and imagined cities.

Cities Through Motion

Figure 36: Managing transportation infrastructure in Cities in Motion

The spaces of flows in the city are always in motion, but there's an important distinction to be made between observing circulation and being embodied as something that circulates. The game **CITIES IN MOTION** (Colossal Order, 2011) demonstrates, the movements of the city's simulated residents to life through transportation infrastructure. The player is an observer, tasked with managing the buses and trains that sustain the urban

population and their ability to move through the space from a God's-eye view. The word "motion" in the title of this game is used in two senses. First, the animated transportation systems evoke the dynamism of urban life, citing movement as its central factor. More so than anything else, it suggests through its system of rules and goals that the key to a happy population is their motility.

The game is exciting and depicts liveliness and the potential for public transportation to alleviate many of our city's problems. However, motion is also used in the sense of Newton's clockwork universe that ticks away according to a set of predictable laws with unpredictable surprises. Motion is equally as exciting as it is mechanical. Our typical experience of motion is not from the all-encompassing perspective of a **CITIES IN MOTION** god manipulating the rail infrastructure but rather as a passenger aboard a tram, like De Certeau's observer standing atop the World Trade Center attempting to understand the world below.

An alternative to watching the city *in* motion is the city experienced *through* motion. A far more cumbersome game, **CITY BUS SIMULATOR 2010** (TML-Studios, 2010), is perhaps a more accurate portrayal of the city. The player is a bus driver who has to drive a set route, picking up passengers and obeying the speed limit. Unlike an airplane simulator—whose complexity evokes the wonder of human flight—the bus is mundane. But though ordinary, it is a familiar way of experiencing the city. These "simulator" genre games abound: **BUS & CABLE CAR SIMULATOR** (TML-Studios, 2011), **BUS DRIVER** (Meridian4, 2007), **WORLD OF SUBWAYS VOL.3: CIRCLE LINE** (TML-Studios, 2011), **CITY CAR DRIVING** v1.2 (Forward Development, 2012), and **TOKYO BUS GUIDE** (Fortyfive, 1999) all undertake the same basic premise of recreating the piloting of public transportation. Pull up to a stop, let passengers on, provide change for passengers paying cash, make sure everyone is aboard, and proceed down the road to the next stop. Since the player is not expected to know the route, a map on screen plots out all the stops. Players must halt at traffic lights, yield to pedestrians, be aware of their turning radius, and manage their time so as not to get off

schedule. The experience of taking on the role of a bus driver and operating a commercial vehicle of that size and complexity is undermined, in most players' eyes, by the fact that one is merely driving a bus—a profession unfairly held in low regard. But who knows the city better than a bus driver? Bus drivers are attuned to the motion of the city: street connections, the ebbs and flow of traffic, driver behavior, the stops where people live and the stops where people work, the quiet commuters of the morning schedule and the rambunctious personalities of the late-night routes. While repeatedly traversing their route they observe the changes in the city throughout the day. And they are intimately mixed up with the infrastructure, public utilities, economies, and government of the city. **CITIES IN MOTION** may be a better game, but **CITY BUS SIMULATOR 2010** is a more accurate urban experience.

Motion and Motility

Emerging from urban philosophy that centers on the description of cities based on their use by people, players' interactions with the videogame city are the product of traversal and navigation (driving, climbing, flying) in conjunction with action mechanics (shooting, talking, collecting, hiding). 3D polygonal videogame cities are neither static environments nor stationary views; rather, they are experienced through motion, action, and play. In pursuing this line of thinking, two similar words need to be clarified: mobility refers to ways of moving through society, while motility refers to the corporeal movement of the body traversing space.[7] A player's movement, and the experience produced from that interaction with space, is one of the primary characteristics that should be considered when analyzing the videogame city. This way of thinking is illustrated by architectural scholar Steen Eiler Rasmussen assertion that "it is not enough to see architecture; you must experience it."[8] Rasmussen uses experience is a general design sense, not referring to any particular phenomenological truth but rather to perception through use. As Kevin Lynch recognizes, the "moving elements in a city, and in particular the people and their activities, are as important as the stationary physical parts."[9] And our experience of a new place is not developed at a glance, but rather through durations of time in the space.[10] The motility of the

player's in-game embodiment (whatever form it takes)—the mechanics by which they are able to move through space—is the primary lens through which the structures of these mediated city spaces should be interpreted. This exploration of popular videogame city motilities demonstrates the significance of movement to the experience of designed spaces. Architectural historian Edmund Bacon opens his seminal text **DESIGN OF CITIES** with an emphasis on the primacy of spatial experience.[11] Space connects human bodies to larger systems as our perceptions of the world deepen.[12] The *experiential* is not only our phenomenological understanding or the narratives we construct about the city, but rather our situation-in and perception-of the urban. Mediated forms of the city provide insight into how mobilities operate and videogames, in particular, create worlds that model how the city can be consumed as bodies in motion.

Motility is the first property of the mobility that sociologist John Urry uses to describe the structures of our modern built environment.[13] Media scholar Eric Gordon references Deleuze's belief that the cinema's greatest power was not its ability to tell a story or represent an object, but that by "extracting from vehicles or moving bodies the movement which is their common substance..." it could depict "the mobility which is their essence." This essence of mobility "came to define modern life," writes Gordon.[14] Unlike photography, which Gordon describes as being able to represent a space, film was able to represent change and motion over time.[15] Not only did this extend to the subjects in the frame (the street corner animated by bustling residents on their way to work) but, like Vertov's **MAN WITH THE MOVIE CAMERA**, also to the camera's ability to move through space (the film camera's lens simulating the viewer's eye).[16] In part, they are manifestations of our desire to conquer our environment, playfully breaking the boundaries which not only partition space but "provide structure to social relations [that] demarcate areas where people can perform different roles..."[17] Play in the physical city, according to Quentin Stevens, often takes place in special areas apart from everyday life.[18] Videogames, alternatively, can take mundane places and create new everyday lives that involve tracking down mobsters in a city

park, nighttime street-racing for pink slips, following an assassination target through an alleyway, and combo-ing a series of rail grinds on inline skates. These are not merely four views of the same city—they are four entirely different urban worlds.

Motility—the abilities of the body's corporeal movement to traversing space—affects expectations of the organization of in-game activities: racing across town to break up a drug deal, climbing a building to get a view of the area, skateboard grinding a telephone wire, parachuting onto the roof of a moving subway car. It enables (or constrains) where the player can go and what they can do. Game designers often use space to guide the experience of important portions of games[19] such that the organization of where activities take place significantly impacts the perception of space. Not only do players map spaces geographically, but more importantly, they map them in terms of activity flow (the juxtaposition of accessible areas and pursuit of game goals).[20] Activity flow can be accounted for by Kevin Lynch's proposition that the image of space is the product of hierarchy, dominant elements, and networks of sequences as the principle spatial constituents.[21] Just as the architecture and arrangement of the space around us in the physical world influences movement, so too does the guiding hand of the game designer. The experience of the videogame city, then, is not an image of the whole but rather a series of movements through space. These games are not merely virtual worlds, but games with goals and direction that influence the player's trajectory. Michael Nitsche observes that unlimited freedom of movement is not necessarily desirable, citing Tinsley Galyean's discussion of narrative guidance that described tracks in game design as guided flow—a river that carries you in one direction downstream while providing freedom of lateral movement.[22] If you provide some freedom of choice while giving trajectory, restriction can be a meaningful part of the experience.[23] Georges Bataille too writes that space in games exists as trajectory.[24] Player motility, as a product of the bodies (human and inhuman) that are inhabited in games, has the most significant effect on perceptions and interpretations of the videogame city.

Motility refers to the player's interaction with a space as embodied by movement mechanics. The player of **GRAND THEFT AUTO IV** (Rockstar North, 2008) can control a pedestrian, an automobile, a helicopter, and a speedboat while the player of **BURNOUT PARADISE** (Criterion Games, 2008) takes on a variety of cars. As a result, **GRAND THEFT AUTO IV'**s Liberty City needs to accommodate all these kinds of motilities while **BURNOUT**'s Paradise City's design needs focus on only one. **GTA IV**'s Niko Bellic needs to be able to enter buildings, plummet recklessly from off-ramps as a driving shortcut, and have enough access points from the water to the land in case the player jumps out of a moving boat. He can walk slowly or run quickly, he can climb up short ledges and ladders but cannot survive a multi-story fall, he can get into a car and can be run over by cars. The player in **BURNOUT PARADISE**, meanwhile, needs wide streets and sweeping, rounded corners to accommodate the high speeds of the turbocharged sport cars. The production of the urban image is a complex process that involves the particular type of movement across the space. The bleakness of Batman's **ARKHAM CITY** (Rocksteady Studios, 2011) or the unsettling sterility of the rooftops in **MIRROR'S EDGE**'s (DICE, 2007) merely provide color—instead, it's the Caped Crusader's Batline tether and gliding cape in **ARKHAM CITY** and Jade's quick feet and long jump in **MIRROR'S EDGE** that actually characterize the player's experience of the respective cities. Studying the practice of skateboarding, Iain Borden observes that "[a]ctions are important not for their production of things, but for their production of meanings, subjects, relations, uses, and desire."[25] *Skateboarding, Space, and the City* is about the position of the marginalized skateboarder in constructing their interaction space. Borden uses skateboarding to illustrate Adrian Forty's observation that "architecture, like all other cultural objects, is not made just once, but is made and remade over and over again each time it is represented through another medium..."[26] By positioning players in a variety of bodies with different motilities, videogames allow us to explore urban space in imaginative ways. Of course, these games often offer multiple motilities, so the experience of the city emerges as they are experienced in conjunction.

On Foot

The pedestrian vantage point is the typical motility of perception addressed in urban studies. Walter Benjamin took up Baudelaire's *flâneur*, the city-dweller who experienced the sights and sounds of Paris with both rapt attention and an aloofness that ran counter to the forces of modern capitalism. Michel de Certeau's chapter on "Walking in the City" from *The Practice of Everyday Life* perhaps most famously urges that the true meaning of the city is not as it appears from above as an architectural form but how it is experienced on the streets. According to de Certeau, "to walk" implies lacking place, a record of this movement only indicates that which is no longer, and movement can be understood as a system. This system, in part, consists of "modalities of pedestrian enunciation," which reveal the relationship between movement and what that movement means.[27] First, the "alethic" modality relates to the mood and intent of the movement.[28] Is the pedestrian taking the most direct route from one place to the next? Does their choice of route represent the multitude of possibile spaces? And how are they negotiating forces acting upon them? Secondly, "epistemic" modalities are concerned with understanding the space and these aforementioned possibilities. Lastly, "deontic" modalities refer to permitted, forbidden, or optional uses of space. Because these modalities deal with rules and choices, they map well to understanding the videogame city.

Walking (and by extension jogging or running) is a motility shared by many games in which a player embodies a bipedal human. **THE DARKNESS** (Starbreeze Studios, 2007) is primarily an on-foot game in which the city is constructed to a realistic scale that supports walking. This scale is experienced in the game by the width of the streets and sidewalks, which appear to be proportionate to the player, as well as the height the buildings and the size of things like doors. The more typical pedestrian movement also means the game has a system of transit in place (the New York City subway) to facilitate traversal of greater distances. In regards to the mobility afforded by the walking body, **THE DARKNESS** also

takes advantage of hidden spaces to reveal whole new areas. A single locked door in the subway station, once opened, can introduce a new place of play previously inaccessible.

Though not a game explicitly about cities, **CALL OF DUTY: MODERN WARFARE 2** (Infinity Ward, 2009) illustrates another way in which urban environments are traversed on foot in a tactical combat scenario. The Rio de Janeiro favela that the player weaves through in pursuit of arms dealer Alejandro Rojas is used to convey the unexpected encounters that emerge from the limited visibility of densely packed buildings. Frances Hodgson writes about the "encounterability" certain spaces and paths afford: "it focuses on an investigation of the relationship between competencies and practices of individuals' path-making, the processes involved in path-making and negotiating encounters and the structures and geographers of encounters in the context in walking."[29] The favela is an unfamiliar space to most. These slums grow piecemeal when cheaply constructed houses are essentially built on top of each other to house destitute citizens in the mountainous outskirts of the city. Ignoring the social issues of the favela, game developers Infinity Ward chose the architecture of the favela city space to support fast-paced, tactical movement and gunplay. The tight spaces meant that the developers could hide enemies around corners, in buildings, and even on the rooftops that form the favela's many layers. Theorist and architect Eyal Weizman, in his essay "Lethal Theory," uncovers the ways in which dense urban architecture creates its own paths of encounterability.[30] In the essay he describes a real combat mission from April 2002, in which units of the Israeli Defense Force in Nablus created what was described by Brigadier General Aviv Kokhavi as an "inverse geometry" that reconceived of the city not as streets and roads but as new paths created by destroying interior walls, ceilings, and floors to move between buildings without ever stepping foot in public space.[31]

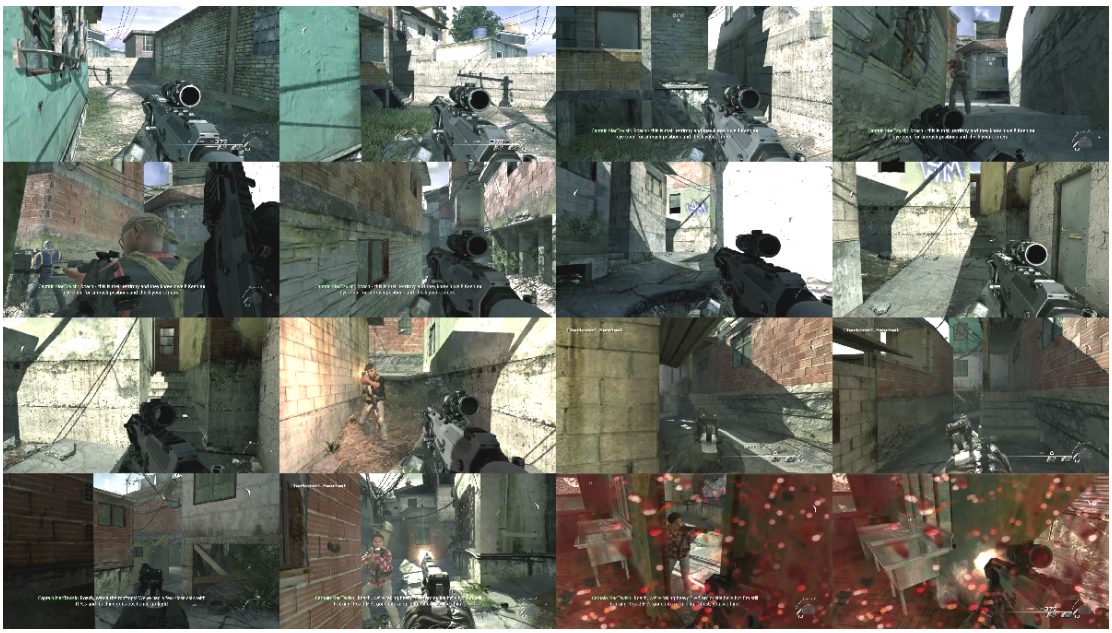

Figure 37: Tactical movement through the favela

The fictional "Takedown" mission of **MODERN WARFARE 2** is constructed with a similar militaristic sensibility—the strategy of moving on foot through and between buildings as a form of cover demonstrates the construction techniques used in favela slums. In the mission, the player is asked to recall a game strategy that has been internalized through years of militaristic play and externalized through the game-over consequences of deviating from the optimal path. As Hodgson writes of environmental barriers, boundaries and bereft spaces: "we read the environment, its form, its fabric, its history, the way it is being used to make decisions about the paths we want to make."[32] This is both true of real and mediated spaces.

While **ASSASSIN'S CREED** (Ubisoft Montreal, 2008) is often thought of as a game primarily about the rooftop acrobatics of parkour, it is as much about being forced to walk. The primary state of movement in the game is slow and methodical. Holding the analog stick forward on the controller doesn't cause the player to run but rather to walk quickly; running and climbing requires one of the controller trigger buttons be held down at the same time. Walking reflects the goal of stealthy movement: blend in with the environment (both the people and the space). Few other games force the player to move this slowly. Often,

walking is used in **ASSASSIN'S CREED** as a means of trailing a subject, following them so they will reveal some information or waiting until they're alone to kill them where nobody will see. While deftly jumping between rooftops and scaling walls creates a city where typical boundaries are no longer applicable, the prosaic act of walking normally subverts the player's exceptionalism. The player, in these cases, experiences the same streets as the wandering crowds of A.I. characters.

As **ASSASSIN'S CREED** illustrates, many games that have other forms of motility also include walking. The pedestrian world of **GRAND THEFT AUTO: VICE CITY** (Rockstar North, 2002) is engaged when a car cannot access an area (the interior of buildings, narrow alleyways, rooftops), during gunplay, when objects need to be collected, or when moving between vehicles. When in a vehicle, the player is afforded a certain amount of protection by both the metal frame and the speed of the car, but Tommy Vercetti's body is rendered fragile when out in the open. If walking rather than web-swinging, Spider-Man is rendered vulnerable; the grounded superhero's reduce motility acts as a handicap that leaves him as nothing more than the pedestrian Peter Parker. Being able to walk can also be empowering. The addition of the skateboard dismounting mechanic in **TONY HAWK'S UNDERGROUND** (Neversoft, 2003) allowed players to redirect the usual forward momentum of riding in order to quickly change direction, move between spaces, and climb vertically. Being on foot is a relatively mundane experience that gets mediated in many ways. By taking it to the streets in the videogame city we are given the opportunity to reflect on what it means to be a pedestrian.

Personal Vehicle

Mimi Sheller and John Urry reinforce a criticism levied against de Certeau's focus on the pedestrian body: American cities remain rooted in automobile transportation, but yet too often sociologists ignore the car in favor of walking.[33] They use the term "automobility" to describe the culture and practice of driving, and the resulting way of structuring space.[34] Because cars demand a lot of space, the landscape is dedicated to them. **GRAND THEFT**

AUTO III (DMA Design, 2001) and **IV** present similar modes of interacting with the New York City inspired space. These cities, like many, are multi-motile. The player can walk, run, jump (and later climb) while on foot, but as the titles suggest, the primary form of travel is in automobiles. **GRAND THEFT AUTO III** makes the most use of vehicular missions—chasing other cars, driving characters around, picking up and making deliveries—as a holdover design from the first two games, which were 2-dimensional and top-down. In contrast, **GRAND THEFT AUTO IV** often uses vehicles as a means of commuting to a destination, at which point the player exits the vehicle and proceeds on foot. They can drive a wide range of vehicles from rundown station wagons to top-end sports cars, motorcycles, trucks, boats and helicopters. These are not just a means of getting from place to place, but are often integrated into the goals of the mission: transporting people, tracking someone down, vehicle races and chases. The city of **GTA III** is almost entirely about the public space of the streets while **GTA IV** creates a city that suggests the thousands of 3D architectural models might have an interior. Despite their differences, both games produce a similar sense of spatiality—the places in between goals are often blurred in the imagination because they are passed quickly on the road.

As has become common in recent videogames, traveling at high speeds in cars even produces a visual effect that literally blurs the world around the player and draws attention to the immediate concerns of the road. Navigation becomes a matter of distancing oneself from the details of the world, recognizing landmarks or by following signage produced by the game's user interface. Nigel Taylor writes about this effect in the physical world:

> *"First, for people travelling on the road, and especially for those driving motor vehicles, the aesthetic experience of the modern city has become one characterized by signs as much as spaces. Secondly, people's experience of observing and moving amongst motor vehicles is an essentially depersonalized experience because (understandably) people typically observe moving motor vehicles primarily as inanimate objects and only secondarily as objects containing other people."*[35]

Sheller and Urry also write about the automobile's privatization of space and isolation of sensory experiences—when driving with the windows up you are not sensing the sounds, smells, temperature, and detail of the city. The vehicle produces a landscape not of buildings, which pass by quickly, but rather of corridor-like transit ways.[36] From inside the car, the roof overhead produces an artificial ceiling that conceals the height of urban architecture. Additionally, in order to drive safely in the city, attention is focused on the movement of other vehicles and traffic regulations. Vehicles produce a different sort of experience in the videogame city. It is common to disregard speed limits and drive in the opposite lane in order to move through the space quickly, and the consequences of crashing are usually minimal. The commonly used third-person point-of-view expands the visibility of the player beyond the interior of the car, though their attention still needs to be fixed on the road. These examples highlight the way transportation modes affect the experience of space and that non-pedestrian modes need to be considered individually.

TRUE CRIME: NEW YORK CITY (Luxoflux, 2005), which recreates Manhattan street for street, features a user-interface display at the top of the screen showing the current street and the approaching cross-street while the player is driving. This display, whose graphic looks like actual street signs, indicates whether the road is two-way or one-way. This is useful in areas that have a structured progression of streets (alphabetical or numeric) or major recognizable arteries, but are less helpful to players unfamiliar with the exact layout of Manhattan in the unstructured areas. **GRAND THEFT AUTO IV** also displays the current street name on screen, but because it is not prominently featured, it is difficult to reference. This information makes it seem like the player should expect to learn an overwhelming number of street names, but in practice it encourages the development of mental models of locations based on landmarks, districts, and paths, (or more often) reliance on the game's GPS-like map system. The names of things in these games—be they street or neighborhood—are largely inconsequential for understanding how the city works.

TRUE CRIME: NEW YORK CITY relies on the dispatch missions—interstitial goals and activities activated by an outside force as the player moves through space that take place outside of the narrative missions—to occupy the player's time. Dispatch missions are common to open-world games because they can populate the world with procedurally generated activities.[37] While driving around the city the player receives requests over the radio to respond to situations and arrest criminals. The player tracks down enraged drivers, subdues violent criminals, resolves hostage situations, and prevents robberies in progress. Significantly, the city's structure and player's motility affects their ability to respond to these requests. Because the game attempts to recreate realistic behavior and a realistic setting, it does not have the kinds of shortcuts built into the terrain often found in games of the genre. So, when a call comes over the radio about a robbery in progress at quite a distance in the opposite direction, the player cannot quickly drive the wrong way down a one-way street, cut through a yard, and jump their car onto a highway on-ramp. The demands of the game are not always matched to its motilities, and can either be interpreted as a mark of bad design or, more favorably, procedural rhetoric[38] that demonstrates the difficulty of police navigating the city.

Games in which the player is only a vehicle—racing games like **MIDNIGHT CLUB LOS ANGELES** (Rockstar San Deigo, 2008), **BURNOUT PARADISE**, **DRIVER: SAN FRANCISCO** (Ubisoft Reflections, 2011)—can concentrate on the design of road paths meant to be zoomed through without worrying about the interplay of other kinds of movement. Paradise City is an entirely fictitious space, which allowed the developers at Criterion Games to build a city meant specifically for racing. Los Angeles and San Francisco, on the other hand, are adaptions of their real counter-parts that make adjustments to well-known streets that can support a kind of vehicular movement to which they are unaccustomed. Mitchell Schwarzer describes this perspective of space in *Zoomscape: Architecture in Motion and Media.* A zoomscape is an area of transformed architectural perception brought about by industrial technologies of motion and media.[39] The freeway (or

the long straight stretches of road that provide the videogame equivalent) become zoomscapes of "linear expositions" as Appleyard, Lynch, and Myer describe in *View from the Road*.[40] The anonymous buildings along the paths of these racing cities often only draw attention when they serve as (or are based on known) landmarks. When the player is embodied as a car and is moving quickly with these motilities, the image of the city cannot be fixed. Instead, the character of the city is developed through stretches of road and the repeated traversal of a single path at high speeds.

Action Sports

Iain Borden writes a history of the skateboarder and their body's relation to space. The first skateboarders who surf-skated were concerned with "surface horizontality and its gentle curvature" and were "seeking to experience through the moving body the expansive stretch of tarmac in all directions."[41] Having most often started as surfers, these skateboarders looked for spaces in the urban and suburban environment that mirrored the roll of the ocean.[42] Their eyes turned to the many empty pools of Los Angeles in the 1970s, developing "an empathy and engagement with the surface of the pool wall."[43] The practice of skateboarding was first and foremost the art of found space and the delight of the body in motion. But the subcultures of the sport, the developments of new tricks, and improvements in equipment meant it could appropriate the urban environment and in the 1980s, street skating became the dominant form. Skateboarding as an urban practice is a kind of critique of the city.[44] As skateboarding legend Stacy Peralta describes it, "Skaters can exist on the essentials of what is out there [...] For urban skaters, the city is the hardware on their trip."[45]

Rather than attempt to modify Times Square to support vertical tricks and rail slides, **TONY HAWK'S UNDERGROUND** constructs a fictional Manhattan composed of real skating landmarks arranged around a central core of buildings. Instead of representing the actual space of New York City, **TONY HAWK'S UNDERGROUND** is a prime example of creating a new place that could very well be a real part of New York City that facilitates the linking of skateboarding moves. It has both elements of the purpose-built skatepark, which

is intimately linked with the body-space of the skater,[46] and the architecture of urban space that presents "a plethora of buildings, social relations, [and] times and spaces."[47] The appropriation of urban space in skateboarding is about presence and resistance, highlighting the spaces and architectural forms that are forgotten or ignored by the everyday city-dweller.[48] **TONY HAWK'S UNDERGROUND** strikes a balance between structures designed to support the body in continuous motion and the significance of adapting non-playful urban spaces.

The skateboarding body travels perpetually forward because the design of the board does not facilitate sudden changes in direction. Speed can be increased by kick-pushing the board, though in videogame physics the player's body moves as though gravity and friction were mere guidelines. Grinding involves sliding the board either perpendicular or parallel to a narrow surface of some kind, often a railing a railing or ledge. Through its impossible momentum, the extreme skateboarding videogame creates a space that can be dominated by the skateboard in motion. Surfaces for grinding are conveniently positioned in proximity to link together tricks, while vertical ramps almost always lead the player back into architecture on which they can do tricks.

TONY HAWK'S UNDERGROUND also highlights the density of city space by using new goals to introduce spaces of which the player was unaware. For example, one of the first missions the player takes on is to help a local student whose belongings were stolen and dropped across the city. The purpose of this first mission is to make the player aware of the second level of play space above the street level. The player uses the skateboarding body to scale a building, grind telephone wires, and perform vert tricks to reach greater heights. Another task the player must accomplish in the Manhattan area is to bribe the central building's security guards. After doing this, the player is transported inside the building to see a vert ramp and rail heaven—a skatepark hidden inside an office building. From that point on, the player may freely enter the building to skate. This demonstrates that the city is full of opportunities for more intricate and extreme skateboarding.

By planning guided experiences through spaces, designers can surprise players with the transformation of familiar places. Goals in **TONY HAWK'S UNDERGROUND**—like a collectible positioned up high—often highlight places the player needs to skate, some of which are not apparent at first glance. In the Manhattan level, this includes a long tension wire that spans part of the harbor that needs to be grinded with a special trick. It also reveals that the player can grind the front bumpers of a series of parked police cars, reinforcing the common narrative of skaters' antagonism to authority figures. While the primary means of travel in the **TONY HAWK** series is a skateboard, **TONY HAWK'S UNDERGROUND** was the first in the series in which the player could dismount their board to walk, jump, and climb on objects. Because a moving skateboard is not the easiest thing to precisely control, being able to walk freely meant that players could more easily get around barriers, precisely position themselves for a trick, and even stop to survey the world. The introduction of the climbing mechanic also meant that players could reach new heights, finding new places to skate atop seemingly inaccessible buildings.

Figure 37: Skating Pershing Square

Other action sports games based on inline skating, such as **JET GRIND RADIO** (Smilebit, 2000) and **AGGRESSIVE INLINE** (Z-Axis Ltd., 2002), draw on the same design patterns as the **TONY HAWK** series. But fitting players with inline skates creates a subtle but important variation in motility. When skateboarding, both wheel trucks are parallel to each

other. The board can roll left and right across its length, slightly changing the direction the wheels face to enact a turning motion. Inline skating, on the other hand, gives each leg more freedom to determine direction and force. A sharper turn can be made using one foot while balancing body weight on the other, making it easier to change momentum and lateral movement. As a result, the city skated through in **AGGRESSIVE INLINE** features more tightly placed architectural features such as the concrete-surrounded tree planters that separate the road running through the city level. In form, however, the **AGGRESSIVE INLINE** and **TONY HAWK** cities are nearly identical. Architectural features such as ledges and railings are laid out such that the body in motion flows from one to the next, chaining moves to score combination points. **AGGRESSIVE INLINE** also features impossibly smooth and rigid surfaces: the player transfers from a rooftop to grind a powerline strung across the road. These spaces creatively adapt skating practices from a world that has grown increasingly hostile to skaters. In modern cities it is not uncommon to find anti-skating guards—pieces of metal affixed to common skating surfaces like benches and railings to prevent grinding—that have dramatically altered the skater's landscape. Regarding this, skating philosopher Nick Riggle writes, "[t]o the extent that architects acknowledge the presence of skaters, it's largely indirectly by trying to *prevent* them from using the spaces they create. This results in, among other things, hideous architectural alterations intended to prevent skating."[49] In response to a world ever hostile to alternative uses, videogames cities can re-enable skateboarding motilities.

Skateboarding may be a familiar urban motility, but Winter Olympian **JONNY MOSELEY MAD TRIX** (3DO, 2001) again reconceives space by turning a number of real-world locations into ski slopes. The first of these game levels is prompted by the question in the game's opening video, "what if it snowed in San Francisco. This transformation of the city has some merit based on the geography of the peninsula that has some relatively steep inclines like Telegraph Hill, Nob Hill, and Russian Hill. Unlike other motilities, skiing is enabled by gravity and requires this sort of down hill course. But in order for the player to

do tricks on ramps and rails, the city had to be taken apart and rearranged in a city which only gestures at being San Francisco. The player skis under freeway overpasses on impossibly wide streets, past representative housing facades, and winds up on the Golden Gate Bridge. Recreating the city could have given the developers a chance to have the player ski on and past notable landmarks, but what is evident in the final product is that the most significant aspect of the game's city was merely the spectacle of using it for downhill freestyle jamming. Here, typical freedoms of movement are constrained by the rigid structure of skiing's reliance on gravity. San Francisco is no longer an open navigable space but rather a series of runs pre-determined by (impossible) geography.

Climbing/Parkour

MIRROR'S EDGE (DICE, 2010) The **ASSASSIN'S CREED** game series, **THE SABOTEUR** (Pandemic, 2009), and **MARK ECKO'S GETTING UP: CONTENTS UNDER PRESSURE** (Atari, 2006), represent examples of traversing across building geometries as a primary motility mechanic. Its movement is more grounded in reality than the superhero soaring through the air or the car racing through the streets, and yet it is a form of movement out of the grasp of most people. In this category, players traverse the world on top of and through built structures. It is a playful motility that reappropriates space similarly to skateboarding. Parkour, specifically, is an athletic running activity in which the practitioner, on foot, treats the built environment as a playful obstacle that they attempt to move through in the fastest and most direct way possible by adapting their body to given spatial restraints.[50] While running, walls, ledges, stairs, gaps, and gates are climbed, vaulted, and jumped between to demonstrate athleticism, balance, and control of the body. Typically, parkour is non-competitive and has no goals except to get between two points, running "through" objects as opposed to around them. As games have adapted the practice, it has been framed in terms of chasing, sneaking, and avoidance.

The city portrayed in **MIRROR'S EDGE** exists in an Orwellian state and the player-protagonist Jade is a courier who freeruns the rooftops of the city to deliver messages and

packages. The stark whiteness of the city's exterior architecture has two effects. First, it conveys a sense of uneasy sterility, as if there is grime lurking under the polished surface. But more importantly, the objects that fill this space stand out visually. Beams suspended across two buildings illuminate the path by glowing with color, walls to be vaulted are bright orange, jump ramps stand out from a distance, and the exit door shines bright red. The experience of running through the city is at once improvisational and highly scripted. There is most often a single path (or slight variations of an optimal path) to take which may be obvious or obscured. Yet because the player inhabits a body with extraordinary physical talents it feels as if an effort has been made to find the proper path. Additionally, because the player must activate this body through controller input and movement, the experience of the city is about reading and interpreting the contours of the architecture.

Unlike **MIRROR'S** Edge, the parkour feats of the **ASSASSIN'S CREED** series are largely accomplished automatically by control mechanics that assist deft movement. The player holds down a button and Altaïr, or Ezio, or Connor (depending on the installment) performs tricks with ease. The same input controls scaling walls, leaping between rooftops, and swinging between bars. While the player is always on the outside of the physical structures of the city, it is as if they are able to run through them. The game has a system in place that takes care of the mechanics of the jump—where to jump to, how to land, where to move next. The player's acrobatic body proceeds through space much like the earlier reference to Eyal Weizman's penetrable architecture of military combat—proceeding through the space as if there were no physical barriers. Most often, the rooftops of these games are used for quick traversal of the space to counter the inefficiencies of the winding streets and paths of early cities like Jerusalem, Damascus, and Florence. An assassin should be able to move quickly without being seen and roofs are often unguarded. As such, these cities are designed with more points to jump to, ledges to cling to, and points on walls on which to hold. Ubisoft took inspiration from the densely packed buildings and crowded

streets of early city settlements and created a range of urban environments that act as parkour playgrounds.

Climbing to specified vantage points around the city also lets the player create an image of the environment. The game indicates that from the top of these towers, church steeples, and guardposts the player is able to take in the surrounding view. Players then "synchronize" with the space and the area around them is filled in on their map. This process runs contrary to de Certeau's criticisms that it is not atop the World Trade Center that New York reveals itself but on its sidewalks and streets.[51] While perching precariously and synchronizing with the surroundings may not reveal much about the culture or people, from a mapping standpoint it is reasonable to assume that surveying a space creates an image of the geography and architecture. While the average person may be able to take the stairs or an elevator to enjoy the vistas of tall buildings, it's the acrobatic parkour moblities of the **ASSASSIN'S CREED** protagonists that turn every ledge into a stepping-stone and every wall into a ladder.

The year before **ASSASSIN'S CREED** was released, **MARK ECKO'S GETTING UP: CONTENTS UNDER PRESSURE** made climbing a primary game mechanic. The game is about the character of Trane who must sneak around the city's heights to paint graffiti in protest of an oppressive government. Mediating the practice and culture of graffiti writing, the game makes Trane an able-bodied young individual capable of climbing buildings and reaching precarious heights to paint inaccessible, and therefore impressive, places. Here, the freedom of movement enabled by the strong human body is equally as important to the construction of space as the act of resistance through art. Another game based on the climbing motility is **THE SABOTEUR**. Set in Nazi-occupied Paris, the player takes on the role of a member of the French Resistance, spending much of the game sneaking around to avoid being spotted, detained, or killed by the soldiers that inhabit the city. Like the polygonal **GRAND THEFT AUTO** games and others similar to those, **THE SABOTEUR** makes use of multiple motilities including walking/running on the ground and driving. It

also uses climbing buildings and moving along the rooftops as a form of defiance. Moving along the streets in the game means submitting to the rules of the Nazi guards: do not loiter, engage in suspicious behavior, trespass Nazi property, or brandish weapons. Thus, motility in these two cities exists simultaneously in the same space: one of which operates according to the mechanics governed by the Resistance, the other by the laws of the Nazi occupation.Each of these four examples uses climbing on buildings and parkour-like athleticism as a means of avoidance and escape. Scaling walls and moving across rooftops is a way of transcending the rules that dictate accepted means of traversal; in all cases the player's actions are implied to be rightful, though illegal. They represent a form of defiance and transgression sited in the athletic body as a tool that enables mobility.

Aerial

While videogame characters often engage in super human activities—making impossible jumps, soaking up bullets in a gunfight, flying helicopters with no prior training—some characters have superpowers that drastically affect their motility. Superhero games based on comic book characters often give the player some aerial motility. Spider-Man web-swings between buildings, Batman glides, and Superman and Iron Man fly. Other characters such as the Spider-Man villain Venom or Cole MacGrath from **INFAMOUS** (Sucker Punch, 2009) possess the ability to scale vertical surfaces quickly. From these powers emerge perspectives on the city that widely diverge from the grounded viewpoint of the pedestrian, car, skateboarder, or skier. As media theorist Scott Bukatman identifies, the superhero reveals how "the city offers room to move."[52] Bukatman directly references de Certeau's "Walking in the City" to describe Spiderman's lack of place as a "trespasser" who is "making his own path across the spaces controlled by others.[53]

SPIDER-MAN 2 (Treyarch, 2004) and **ULTIMATE SPIDER-MAN** (Treyarch, 2005) provide two similar examples of the body traveling through open-world cities. Spider-Man's motilities emerge from the body like walking but are closer in speed to vehicular travel. Spider-Man's web-slinging is a fantastical form of travel. The motion of web-swinging, with

the swooping camera trailing behind Spider-Man's back, produces a unique sensation of the body in motion. "Superman's magisterial gaze and Batman's profound urban knowledge were revised by Spiderman's more improvisational, sensational style."[54] To swing, the player directs Spider-Man's web shooters at the general direction of a building to attach to it and begins the swinging motion. Forward progression while web-swinging is enacted by shooting the web at an adjacent building drawing on the momentum of the current swing. While the physics of the swing do not always perfectly align to the player's intentions, the movement is consistent enough such that the player can reliably traverse the city. Much like its real counterpart, Spider-Man's Manhattan is largely orthogonal. By necessity of traversal, the geometries the web can attach to need to be uniform or else the player loses momentum or becomes stuck. Buildings in both of the **SPIDER-MAN** games are composed of simple geometries and textures because the rate of speed at which the player is moving requires they be loaded from the hardware's memory quickly.

Spider-Man can also web-zip, a technique in which the player shoots a line of web straight ahead and pulls themselves quickly toward that point. This can be used on the surface level street to move faster, on the tops of roofs to help jump from one to the next, or on the sides of buildings as the player scales them vertically. Swinging and web-zipping are fast modes of movement: the player can travel at rates faster than the cars on the ground. These skills also re-orient the perspective of the player a city-dweller. Moving between two points along the streets of Manhattan requires making multiple turns, but Spider-Man's body is capable of ascending to the rooftops where he can follow a more direct route in which buildings are no longer barriers. The player learns a new language for traversing the city that extends from Spider-Man's motility, occupying familiar space in a new way.

Scott Bukatman criticizes the **SPIDER-MAN** movies (on which **SPIDER-MAN 2** game was based) for depicting a superhero body that demonstrates finesse without corporeal grounding. In musical films, Bukatman writes, there is a transformation between scenes in which the performer occupies a normal body and an expressive choreographed body.[55]

Critically he observes, "after Tobey Maguire pulls Spider-Man's mask over his face, the figure onscreen literally ceases to be Tobey Maguire."[56] The computer-animated body detaches itself from our body's reality, which "has the unfortunate effect of severing the connection between the inexpressive body and the liberated, expressive one."[57] In contrast, the videogame—by embodying the player as a character like Spider-Man—reconnects the fantastical motion of the computer-generated image to the input of the player through the game controller.

While Spider-Man's web-swinging and web-zipping produces primarily lateral movement between buildings, the playable character of Venom in **ULTIMATE SPIDER-MAN**, is primarily vertically oriented. He is able to leap to extraordinary heights and run up the sides of walls, pulling himself along with a whip-like extension of his suit. Though they occupy the same physical space, the city of Spider-Man and Venom are experienced quite differently. Spider-Man moves best between buildings, web-swinging his way to the next mission marker or trying to reach a group of thugs mugging a woman. When restricted to the streets, Venom's heavy body moves slowly while walking but bounds aggressively as he jumps great distances. Venom does violence to the city through his movement: the ground roars and shakes as he lands and the buildings produce a sound of glass being crunched under the strength of his limbs. The contrast between the deft acrobatics of Spider-Man and the violent, catapulting Venom illustrates how the good and evil sides of this comic book New York City exist.

The titular city in **BATMAN: ARKHAM CITY** is portrayed as an island with a series of districts surrounding a restricted area. In the fiction of the game, the Gotham government repurposed the island to house the inmates of the overcrowded prison and Arkham Asylum, giving it a history that explains its different sites and previous uses. Most significantly, it differs from the structure of the previous Batman game **ARKHAM ASYLUM** (Rocksteady Studios, 2009) in its open-world structure. Whereas Batman used his gadgets and skills to reach new areas in **ARKHAM ASYLUM**, the grapple gun, Batline launcher, and gliding cape

are used to traverse great distances in **BATMAN: ARKHAM CITY**. Arkham's architecture is full of flourishes jutting out from the sides of buildings that provide grapple points for the player's tools. The grapple gun receives an upgrade in this game that boosts Batman's speed, allowing the player to slingshot into the air so that they may glide a greater distance. If Spider-Man's New York is about uniformity, Batman's Arkham is about disorder. The arrangement of the city reflects the chaos of giving prisoners space to roam, and it is only Batman's traversal and maneuverability that can restore order.

Both the **SPIDER-MAN** and **BATMAN** games feature dispatch missions like those of **TRUE CRIME: NEW YORK CITY**. While swinging through **SPIDER-MAN**'s Manhattan, blips appear on the radar showing the location of crimes in progress or people in need. This work is a part of Spider-Man (and the player's) obligation. While these activities illustrate the city as a place of constant tension, they can be repetitive and interrupt the current progression of the game. These interstitial goals have no sense of situated place. A beat-up-bad-guys mission is equally as likely to occur in the financial district of Manhattan as it is the dodgier areas of Queens. Both **SPIDER-MAN 2** and **ULTIMATE SPIDER-MAN** use these dispatch missions as activities between the story missions and as a way for the player to earn points to power up and advance. **ARKHAM CITY** also uses them both these reasons, while adding a narrative conceit of restoring order to territories.

More so than **BATMAN: ARKHAM CITY**, **GRAVITY RUSH** (Project Siren, 2012) is about flying through the city. The protagonist Kat is imbued with the power to change the direction of gravity's pull on her body. At the press of a button the player can cause Kat to float in the air, aiming a reticle at the direction they want as the source of gravity. Kat will go flying at a wall and the camera reorients itself to treat the side of a building as if the player were the ground. In order to provide more obstacles in this reoriented worldview, the architecture of the city of Hekseville uses complex geometries for all sides of its buildings. It also means that narrow corridors make it more difficult to enact gravity shifting and can provide challenges for the player, as demonstrated by a foot chase through an alleyway or

combat sequences in enclosed spaces. Additionally, what makes Hekseville unique from most other game cities is that it is floating in the air as a series of districts connected by bridges and transportation infrastructure and held up by massive supports that vanish into the distance below. The player can jump off the edge of one district and reorient gravity to be upside down, traversing the sewer pipes that empty out into the vastness below and the beams that hold the city together. Kat's gravity altering motility enables a city that has depth and verticality, with residents that live below the streets around the periphery of each district.

Figure 38: Flying through the city in Gravity Rush

These soaring bodies are far removed from our experiences of the city. We have few methods of experiencing urban verticality outside of buildings; "flying squirrel" wingsuits gliders, urban base jumpers, and the extreme building-climber "Spider Man" Dan Goodwin are among the few who have reoriented the city as an aerial endeavor. Videogames provide for fantastic forms of superhuman motility that changes the speed, scale, and height of the urban experience.

Non-Motile Mobilities

Not all movement around the city is enacted by the player-character's body. Many games use automated forms of travel as "warp devices"[58]—be they embedded in the world like a subway ride or a loading screen that moves from one scene to the next. These are non-motile in that the player is not controlling the body in motion, but they're related in that they are ways the player can move between disjointed spaces. In Westwood Studio's **BLADE RUNNER** (1997) adventure game, the player is moved between different (mostly static) scenes. The places in the city are not geographically connected and, as a result, the texture of the city must be formed narratively and visually. But even though the player is not in control of their trajectory, it is fitting for them to be embodied as the detective Ray McCoy—an archetype of the crime and film noir character who often move through space in a similar fashion. In **SHIN MEGAMI TENSEI: DEVIL SURVIVOR** (Atlus, 2009), the player takes on the role of a team of kids trapped in a Tokyo quarantine zone who must use demons to battle with other demons. Tokyo is represented through a menu on the bottom screen and a map on the top. The menu allows the player to select from a list of places to travel (such as Shibuya, Akihabara, Shinjuku Train Station) but going to a place does not mean being embedded in a game world. Rather, unless there is a battle to be had at that place, each space is merely a text description that displays after choosing secondary action options like "Look around" and "Listen to people here." Like **BLADE RUNNER**, the city is treated as a series of vignettes that reveal little about the construction of space. The world might present itself as Tokyo but because the player isn't moving their self, the actual Tokyo-ness of the space remains elusive.

Turning back to automated forms of travel that are grounded in game bodies, it is an unusual circumstance to have something else move the player in a game where they are normally in control. In **GRAND THEFT AUTO IV**, the player can hop in the back of a taxi and direct the driver to a destination, choosing to either sit and experience the full drive or skip instantaneously to the desired location. Some cabbies will converse with Niko Bellic,

while others just let the radio play. Sitting in the back seat, the player, in a first person perspective, can move their head around to look out the windows or over the front seats across the hood. Unlike other vehicles, which require concentration on the road, this provides an opportunity for the player to take in the sights of the city. While not meaningful in terms of the specific use of these traveled spaces, observation helps form a cohesive image of the city and its elements.

GRAND THEFT AUTO III and **IV**, **THE DARKNESS**, and **TRUE CRIME: NEW YORK CITY** employ the subway as an actual transportation system. If so inclined, the player can move through Manhattan on the subway in **TRUE CRIME: NEW YORK CITY**. The same subway platform model is used for each of the many stops but the signage updates to indicate the station's location. To ride the subway, the player must enter the station, wait for a train, and enter the car. Upon doing so, the pause-menu map appears and the player can select any location on it. The subway of **TRUE CRIME: NEW YORK CITY** has a disorienting effect that diminishes the legibility of the city. Every subway station looks the same in the game because the only difference is the sign that indicates the stop name. Subway rides take as long as the disc loading of the next area. This, in addition to a technical glitch that doesn't update the player's pause map until after they've exited the station to the surface, means the subway is merely a teleportation system void of spatial legibility.

This can be contrasted with **GRAND THEFT AUTO IV**, which gives the player the option of experiencing the entire duration of the train ride while cycling between different camera angles outside the train. This is even true of the underground rail lines. This experience of riding the train is quite opposite the everyday experience in which the rider's attention is turned inward and the passing of the city goes unnoticed. As the subway platform is a primary location in **THE DARKNESS**, riding on the subway is a necessary means of moving between spaces. Once the player enters the subway car, a rotating series of cut-scenes of the protagonist Jackie Estacado talking about his upbringing and memories of the subway play, hiding the loading time between areas. The subway moves the player

between the neighborhoods not connected by the surface streets, giving them more access than their pedestrian motility would allow.

Taking the subway in a videogame is kind of a bizarre construction. In a medium in which programming code can be executed that could instantly transport player to any other location, activities like waiting for a subway train might seem like a holdover from our physical, corporeal expectations about space. Selecting where we would like to go from a menu of choices or by icons on a map would be far more convenient that getting into a car, hopping on a bicycle, or waiting at a bus stop. But though this method of instantaneous travel would certainly be more efficient, when we are required to traverse space we produce mental links that relate geographies to each other, experience the flows of the world around us, and develop an image of what it means for a city to be in motion. A static city, as I have argued, is hardly a city at all. But through movement and action, we interpret the city and understand its specificity and place.

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[1] Ibid., 15.

[2] Ibid.

[3] Donald, *Imagining The Modern City*, 182.

[4] Celia Pearce, *The Interactive Book: A Guide to the Interactive Revolution* (Indianapolis, IN: Macmillan Technical Pub., 1997), 25.

[5] Michel de Certeau, *The Practice of Everyday Life*, trans. Steven Rendall (University of California Press, 1988), 92.

[6] Bacon, Design of Cities, 20.

[7] John Urry, "Does Mobility Have a Future?," in *Mobilities : New Perspectives on Transport and Society*, ed. Margaret Grieco and Urry, John (Farnham, Surrey; Burlington, VT: Ashgate, 2011), 3–19.

[8] Steen Eiler Rasmussen, *Experiencing Architecture* (Cambridge, Mass.: MIT Press, 1964), 33.

[9] Lynch, *The Image of the City*, 2.

[10] Pearce, *The Interactive Book: A Guide to the Interactive Revolution*, 27.

[11] Bacon, Design of Cities, 15.

[12] Ibid.

[13] Urry uses the term "corporeal movement," but I have substituted motility to represent a range of embodiments. See Urry, "Does Mobility Have a Future?," 4–5.

[14] Gordon, *The Urban Spectator*, 66.

[15] Ibid., 67.

[16] Ibid., 66.

[17] Stevens, *Ludic City*, 114.

[18] Ibid.

[19] Jakobsson, "Activity Flow Architecture."

[20] Ibid., 167.

[21] Lynch, *The Image of the City*, 115.

[22] Michael Nitsche, Video Game Spaces: Image, Play, and Structure in 3D Game Worlds (CambridgeMass.: MIT Press, 2008), 175.

[23] Ibid., 176.

[24] Alberto Iacovoni, Game Zone (Basel: Birkhäuser, 2003), 27.

[25] Borden, *Skateboarding, Space and the City*, 12.

[26] Ibid., 38.

[27] de Certeau, The Practice of Everyday Life, 99.

[28] Ibid.

[29] Frances Hodgson, "Structures of Encounterability: Space, Place, Paths and Identities," in *Mobilities : New Perspectives on Transport and Society*, ed. Margaret Grieco and John Urry (Farnham, Surrey; Burlington, VT: Ashgate, 2011), 41.

[30] Eyal Weizman, "Lethal Theory," 2030: War Zone Amsterdam, Open, 18 (2009): 80–99.

[31] Ibid., 53.

[32] Hodgson, "Encounterability," 55.

[33] Sheller and Urry, "The City and the Car."

[34] Ibid.

[35] Taylor, "The Aesthetic Experience of Traffic in the Modern City," 1611.

[36] Sheller and Urry, "The City and the Car."

[37] Gregory J Snyder, *Graffiti Lives: Beyond the Tag in New York's Urban Underground* (New York City, NY: New York University Press, 2009), 32–33.

[38] Ian Bogost, *Persuasive Games : The Expressive Power of Videogames* (CambridgeMA: MIT Press, 2007), 3.

[39] Mitchell Schwarzer, *Zoomscape: Architecture in Motion and Media* (New York City, NY: Princeton Architectural Press, 2004), 17.

[40] Ibid., 105.

[41] Borden, *Skateboarding, Space and the City*, 30.

[42] Ibid., 33.

[43] Ibid., 32.

[44] Ibid., 173.

[45] Ibid., 179.

[46] Ibid., 185.

[47] Ibid., 186.

[48] Ibid., 188.

[49] Nick Riggle, "The Aesthetics of Skating," The Creativity Post, January 5, 2012, http://www.creativitypost.com/pop-culture/the_aesthetics_of_skating.

[50] Lukas Feireiss, "Urban Free Flow: The Individual as Active Performer," in *Space Time Play Computer Games, Architecture and Urbanism: The Next Level*, ed. Friedrich von Borries et al. (Boston, MA: Basel-Birkhauser, 2007), 280–81, http://site.ebrary.com/id/10266192.

[51] de Certeau, *The Practice of Everyday Life*.

[52] Scott Bukatman, *Matters of Gravity: Special Effects and Supermen in the 20th Century* (Durham, N.C.: Duke University Press, 2003), 211.

[53] Ibid., 207.

[54] Ibid., 206–207.

[55] Scott Bukatman, "Why I Hate Superhero Movies," *Cinema Journal* 50, no. 3 (Spring 2011): 121.

[56] Ibid.

[57] Ibid.

[58] Alison Gazzard, "Teleporters, Tunnels & Time: Understanding Warp Devices In Videogames," in Breaking New Ground: Innovation in Games, Play, Practice and Theory (presented at the DiGRA, Brunel University, London, 2009).

CHAPTER 7:
EXPERIENCING PLACE

We experience videogame cities through movement and action, most often guided by a structure that suggests where to go and what to do. As we do this, we form spatial memories of the game—but these memories are not comprehensively linear. Instead, we relate individual activities, processes, and space into a personal story: the emplotment of unit operations into a narrative-like synthesis. There is a dynamic relationship of points and locations in our world and how people perceive them—*space* and *place*. Generally speaking, *space* is the plane of existence, while *place* is the plane of experience. These two concepts have been discussed extensively in geography, sociology, cultural studies, phenomenology, architecture, and even in relation to computational artifacts. Two perspectives inform our understanding of place in games. In the first, there are ways game designers, like architects and urban planners, can emulate identifiable qualities that contribute to a sense of place when building their city. In the second, players form their own memories of videogame worlds based on their experiences and interaction with the space. To understand how a sense of place is formed in videogame cities specifically (and games as a whole more broadly), we should first look at the works of architectural theorists and cultural geographers. Space and place concepts can then be negotiated with the works of game studies scholars who have written about the subject and then applied to games that exhibit a sense of placeness.

Early writings on place in geography come from Christian Norberg-Schulz, Edward Relph, and Yi-Fu Tuan. Relph, approaching place from a phenomenological perspective, opens his 1976 book with references to Hugh Prince ("a knowledge of places is an indispensable link in the chain of knowledge") and Martin Heidegger ("[it] places man in such a way that it reveals the external bonds of his existence and at the same time the depth of his freedom from reality").[1] Relph criticizes architects and planners of his time for ignoring placeness in their designs, noting that place was largely the purview of geographers and historians.[2] And, as a result, place was used as a description of the location of something

rather than "the location plus everything that occupies that location seen as an integrated and meaningful phenomenon."[3] Relph describes the essence of place as such:

> *"In our everyday lives places are not experienced as independent, clearly defined entities that can be described simply in terms of their location or appearance. Rather they are sensed in a chiaroscuro of setting, landscape, ritual, routine, other people, personal experiences, care and concern for home, and in the context of other places."*[4]

Writing at the same time as Edward Relph (as footnoted in the opening pages of *Place and Placelessness*), Yi-Fu Tuan approaches the concept of place from a self-described humanistic perspective. Tuan defines space as "the relative location of objects or places, as the distances and expanses that separate or link places, and—more abstractly—as the area defined as a network of places." "Original space," he writes, "is a contact with the world that precedes thinking."[5] For Tuan, the key concept in the formation of place is the nature of human experience, which is "a cover-all term for the various modes through which a person knows and constructs a reality."[6] His work asks questions of how and what a person experiences by looking at the physical body, relationships between people, cultural values, mobility, architecture, time, attachment, and even imagination. In the case of the physical body, Tuan emphasizes the importance of human sense organs in not only how people experience the world but, in turn, how they create it to respond to those senses. Kinesthesia, sight, and touch are the dominant senses because they enable us to navigate the world, but Tuan notes that smelling and hearing are equally important because they make spaces unique. It is our ability to perceive and act on our comprehension of the world that develops our sense of place—that one space is different than another. Citing Heideggar, Yi-Fu Tuan writes, "space is oriented by each centre of consciousness."[7]Primitive consciousness perceives space as the body's ability to move and act ("I can") while intelligence perceives place as interpretation ("I think"). But while we can experience and comprehend new space at first glance, "the meaning of place lies in the expression that people use when they want to give it a sense carrying greater emotional charge than location or functional node."[8] Places

can include public symbols identified by individuals or communities as having significance, "fields of care" in which humans are emotionally bound to their environment, stories of use, and even mythical place that emerges from thinking of unknown physical spaces or by creating mental models of the environment and world.

Tuan's work leaves open the possibility that non-physical places can be formed so long as a human is able to experience a type of space. Steve Harrison and Paul Dourish address virtual places such as these in their discussion of the misplaced metaphor of spatiality in collaborative computer systems.[9] The problem in Computer Supported Cooperative Work (CSCW) they identified was that most relied on spatial analogies that attempted to mirror the patterns of physical collaboration. But because virtual spaces, especially in the 1990s, had trouble communicating relational orientation, proximity, and awareness, the metaphors became difficult to enact. Instead, they posed place as a better frame for understanding because while we are located in "space," we act in "place," and thus acting within the framework of what we think makes places allows a place without space.[10] In addition to ways of acting, virtual worlds can index other well-known places or include objects evocative of a world with a sense of history and personality. Social memory is encoded into these spaces in the hopes that players identify with, and thus believe in a place that existed prior to the player's encounter with it. Urban designers can attempt to reinsert meaning into a space through environmental imagery, natural history, craft and cultural traditions, memory, history, and formal aesthetics.[11] In 1976, Edward Relph's concern for the seemingly inevitable tide of placelessness in the modern world lead him to ruminate on the possibility of designed lived-world places.

The *place* in the videogame city may seem difficult to identify. One traditional conception of a place is the "social memory" formed by individuals engaging with the stories about their (and others') surroundings.[12] But the games I have discussed are primarily single-player. So, while players might share their thoughts about the city with other players through an online conversation or over a pint of beer, those memories were neither formed together

nor collected in a formal way. The "social memory" of the place of a videogame city may exist paratextually on web forums, wikis, and blogs (a subject that could be a dissertation of its own), but some other sense of *placeness* is still formed during the solitary experience. Place, it is worth noting, is a subjective quality. What makes one location in the world meaningful to one group of people may have no connection to another. And even the same *genius loci* may represent different things to different people. The "social memory" of a place is useful because it establishes common grounds for speaking of the significance of a space, and we tend to like this conception of placeness because it requires validation. But others places are deeply personal and emerge from what Edward S. Casey calls "place memory." What may appear to a parent as just a clearing in the woods may actually be the imagined fantasy realm of their child's playtime. Your neighborhood park might be the site of an improbable softball game victory's elations, but it might also be the destination of a despondent teenager, looking for a quiet space to cope with the loss of a loved one.

In examining the places of videogames, I refer first to the properties that often encourage generic spaces to feel like places. Discussing the matter of designing for placeness, Edward Relph writes:

> *"What we needed is not a precisely mathematical procedure that treats the environments we live in like some great machine that we do not yet quite understand, but an approach to the design of the live-world of both everyday and exceptional experiences [...] an approach that is responsive to local structures of meaning and experience, to particular situations and to the variety of levels of the meaning of place; an approach that takes its inspiration from the existential significance of palace, the need that many people have for profound attachment to."*[43]

This is not a list of places in games, but rather what games can do to develop a sense of placeness in these real-and-imagined cities. A *sense of place* is something that some games do well, but others do not. Games like those of the **ASSASSIN'S CREED** and **GRAND THEFT AUTO** series appear to make conscious efforts at establishing identifiable places—both at the zoomed-out level of the city as a place itself and the zoomed-in level of places

around the city. Others, like **SAINTS ROW: THE THIRD**, seem to want their cities to have identifiable specificity with less successful results (as explained at the end of this chapter). Placeness, as the product of spatial participation, seems to emerge from two directions. "Social memory" points towards techniques of representing place through design, while "place memory" is the product of player experience. Because the experience of a place is an inherently personal affair, I have saved descriptions of my own experiences of a few cities for a series of short essays in the next chapter. In this chapter, I discuss the different ways place is formed in videogame cities.

Representing Place

Discussing the idea of place and presence in videogame cities, Klainbaum and Bogost refer to the way the **GRAND THEFT AUTO** games "create a sense of presence in urban landscapes by operationalizing a fundamental understanding of how we perceive the very real cities we live in."[14] In particular, they argue that it is the level of symbolic representation that builds these game worlds from the perceptions of these cities in popular culture, leveraging Miami in **VICE CITY** and Los Angeles in **SAN ANDREAS** as examples.[15] Using indexical references, games can develop senses of place by diagetically referring to locations and objects already imbued with strong meaning. The iconic strip of neon art deco hotels along Ocean Drive in Miami Beach is evocative of fashionable nightclubs, beautiful people cruising in expensive cars, and perhaps a reckless romanticism of cocaine fueled all-night ragers with supermodels and high powered executives. And, for many people, this **MIAMI VICE** or **SCARFACE** influenced depiction in **VICE CITY** is Miami. Similarly, the starting city of Los Santos cities of **GRAND THEFT AUTO: SAN ANDREAS** makes reference to a 1990s southern Los Angeles that was depicted in movies such as **BOYZ N THE HOOD** and **MENACE II SOCIETY**. (Interestingly, once the plot of the game moves CJ out of Los Santos into the countryside and onto San Fiero and Las Venturas, the indexical references to film places are replaced by more general senses of San Francisco and Las Vegas.) Los Santos is not Los Angeles because of a re-created street map, but rather its essence seems to be

captured in representational elements.[16] Music, which lies outside the scope of this research but is still important, has been shown to contribute meaningfully to the **GRAND THEFT AUTO** games' attempts at evoking a particular place and time.[17]

Landmarks are a powerful way games (and other mediated spaces) can refer to the uniqueness of cities that contributes to their sense of place. Many videogame cities based on existing physical cities make use of well-known places to imbue their game with meaning. Manhattan's Times Square symbolizes the bustling center of the metropolitan world. Los Angeles's U.S. Bank Tower stands tall, signifying the city's relationship to wealth and power. And the Eiffel-inspired Tokyo Tower represents Japan's communication networks and media access. Atlanta in **MIDNIGHT CLUB 3: DUB EDITION** (Rockstar San Diego, 2005) vaguely resembles the layout of the real city, but skyscrapers like the Bank of America building, the cylindrical Westin hotel, and the SunTrust Plaza are symbolic of Atlanta more broadly. And, because the player spends their time in the city at speeds near 100 mph, these large buildings are the few persistent images that differentiate objects in the landscape. In many cases, it is not about knowing what is being indexed, but rather that the player recognizes the gesture. For any player unfamiliar with Atlanta's Piedmont Park, the mere idea of a large, cultivated open space signals specificity and thus calls on placeness.

Not only do games index existing named places, they draw on a whole category of spaces we think of as exhibiting the qualities of a place. For example, what kind of neighborhood do we imagine has strip clubs and pawn shops? What does a bustling market on a piazza signify about a city's residents?A city block of government buildings likely leaves that downtown district empty after a workday, which is quite a different place than a lively arts district. Our use of these spaces and buildings might be transformed during the course of play, but when they are initially presented to us they certainly carry connotations based on our expectations. As an example, consider Ray Oldenburg's "third places" of leisure and community interaction.[18] When Niko Bellic and his cousin Roman go drinking in a Bohan bar, **GRAND THEFT AUTO IV** is employing a familiar type of place that lends credibility to

this neighborhood as somewhere these virtual characters could live. And we don't even have to go to the coffee shop for its semantic payload to be delivered (though it is certainly more powerful when we do).

Klainbaum and Bogost argue that players in virtual cities that recreate existing spaces seek out places they know, but that "inevitably, failure to find a favorite coffee shop results in a breaking down of immersion for the player and makes the virtual environment less meaningful."[19] I contend, however, that our literacy of the abstractions required when building virtual worlds means that though we may hope to see familiar locations, we come to accept videogame cities on their own terms. Whereas major missing landmarks—a London without Westminster Abbey, for example—would prove startling, less prolific locations can be abstracted out of the representation. The same can be said of fictional videogame cities that do not have specific reference points in existing cities. By considering the qualities we expect from cities, we may be able to identify what feels like it's missing. A city without monuments, as discussed in chapter 3, isn't really a city at all because it lacks history and a shared, even if fabricated, narrative.

The diegetic/narrative history of a videogame city (as opposed to its development history or the player's own history) situates the space as a part of a fictional social memory. Landmarks and buildings function as narrative architecture that can capture the city's history. For example, the numerous Richardsonian Romanesque churches of **SAINTS ROW: THE THIRD**'s Steelport provide some clue as to when the city was founded and who its residents were, and their presence amidst the mega-tall neon skyscrapers provides interesting contrast to city's current status as the capital of criminal corporations. Similarly, in videogame cities that adapt existing cities, there are a variety of ways to refer to historical developments. North American players, for example, may be unfamiliar with many of the European locations that appear in the **ASSASSIN'S CREED** series. The game's developers and artists paid careful attention to these buildings to make them believably historical, so not only does the player encounter the carefully modeled form of Filippo Brunelleschi's Basilica di Santa

Maria del Fiore, they are also provided with information about the building as a pop-up box that later retrievable from a database accessible through an in-game menu. Because a part of what makes a place is its history, referring to this information explicitly informs the player of its significance. And, even if the player never bothers to read this text, they are still aware that it is a real landmark of historical significance.

By depicting familiar places—whether specific or categorically—videogames can bring symbolic content to their cities. These representations sew the initial seeds of the feeling of place. And though games like those of the **GRAND THEFT AUTO** series do a particularly good job at capturing these real and mediated images, the often vernacular design choices made when including pre-fabricated places form weak bonds. They might encourage an attachment to the space, but it is really only through our experience of the city that we can identify its specificity.

Experiencing Place

> *"It is the stabilizing persistence of place as a container of experience that contributes so powerfully to its intrinsic memorability. An alert and alive memory connects spontaneously with place, finding in it features that favor and parallel its own activities. We might even say that memory is naturally place-oriented or at least place-supported."* — Edward S. Casey

Place memory is the product of our interaction with the city and are the "directly experienced phenomena of the lived-world and hence are full with meanings, with real objects, and with ongoing activities."[20] For videogames in particular, this emerges as we move though the city and participate in the activities it offers. Playing the game, we experience the connected spaces and process of the city, coming to understand it the *spaces of flows* Manuel Castells describes. "Place memory," writes Dolores Hayden, "might include personal memory of one's arrival in the city and emotional attachments there, cognitive memory of its street names and street layout, and body memory or routine journeys to home and work."[21] Rarely do we have linear memories of the places we visit; instead, we create a

narrative-like synthesis through the emplotment of our interactions with the city's constituent parts (it's unit operations, as I described in the introductory chapter). How we form these place memories draws in equal parts from our experience of physical spaces, our imaginaries of mediated places, and the qualities that define videogames as a medium.

Repetition And Time

Yi-Fu Tuan asserts that space cannot be separated from experience the physical body has through the passing of time.[22] We experience many durations of time in game worlds, and while the subject has been well covered in game studies, for the purpose of this discussion Zagal and Mateas's formulation of *gameworld time* (which exists alongside three other notions of duration in a temporal framework of games)[23] best addresses the experience of being-in and acting-inside the videogame city. Gameworld time is an internal logic that includes the set of events taking place within the represented city, the duration of time the player's character experiences in the world, and representations of the passage of time.[24] Time, as Steffen Walz asserts, serves as a part of the kinetic dimension of architecture, which is itself an active producer of space.[25] Rhythms impress memories of our spatial experiences, and because places are a product of memories it is hardly surprising that we have attachments to those locations and paths in the world we have frequented. A quiet reading spot on campus, a shortcut home along a wooded trail, a family vacation spot; our spatial experiences form mental images both positive and negative. Similarly, the time spent in parts of the videogame city makes a significant contribution to whether a sense of place has the ability to form.

Frequently, open-world cities depict the passage of time with a day-night cycle that progresses regardless of what the player is doing. Despite its artificial construction—with hours passing in the matter of minutes—it contributes to the sense of a city that has its own flows. Alternatively, time may advance in accordance with the plot. Much of **THE DARKNESS** (Starbreeze, 2007) takes place at night because it is about a character whose superpowers only work in the dark. Darkness and nighttime, contrary to our typical

expectations, become a place of safety and refuge. Unlike **GRAND THEFT AUTO**, the New York City of **THE DARKNESS** is not a clockwork city, so passing in-game time does not affect the time of day. There are only passing references to the progression of time and the player has no way of knowing exactly how long it has been since the night of Jackie Estacado's 21st birthday when he inherited the "Darkness" powers. It can be assumed that the first part of the game takes place through the course of that night, but there is a disorienting mapping of play-time and narrative-time. The player could allow 20 hours to pass in play time and it would never turn into daylight. However, it is expected that the player can complete the different parts of the game in the course of a few hours, so an effort would have to be made to find the disconnect in play time and narrative time.[26] The persistence of the characters in the subway stations gives the illusion of time progressing much slower underground than on the surface. However, as Michael Nitsche writes, "we can deal with these complex temporal settings in video games because of our spatial understanding." Time of day in the game does not relate to the passing of real world time, but is rather triggered by events that come about through the movement and action of the character. The lack of temporal reference is disorienting in a way that also compliments the narrative—giving the sense that everything following the murder attempt on Jackie is a blur and foreshadowing the surreal narrative and spatial turns later in the game. In the same way that the game was designed to focus only on a small section of Lower Manhattan, the obfuscation of passing time shrinks the city experience and allows an intimate place to develop.

Videogame historian Zach Whalen has written about the affect repetition has on the character of the city. Frequently visited points, such as the safe houses in the **GRAND THEFT AUTO: SAN ANDREAS** constrain our location in a game that otherwise affords freedom of movement. And each safe house can be evocative of different aspects of the game. For example, consider the Ocean View Hotel that serves as Tommy Vercetti's first safe house in **VICE CITY**, located at the southern end of the Ocean Beach district. Because

this safe house functions as the game's first save point, the player frequently returns here as they begin to develop their impressions of the city. Though Ocean Drive, the strip of South Beach that **VICE CITY** recreates, has more in common with its crime-ridden counterpart of the 1980s, it still possesses a sense of glamour.The player—taking on the role of a character for which rules do not apply—demonstrates their dominance over this space as they steal cars, speed recklessly down Ocean Drive, and engage in a number of missions around the area. It is likely the first neighborhood they learn to navigate and, as they are bombarded with neon colors and Frankie Goes to Hollywood on the radio, it becomes the place they associate with the character of the city as it begins to soak in.

Another example of safe houses in relation to place is illustrated by the penthouse in the Northwood neighborhood of Algonquin in **GRAND THEFT AUTO IV**. This residence in the game's version of Manhattan's Washington Heights is obtained after completing a mission that requires the player to choose between two of their companion characters: the boisterous but troublesome protégé Playboy X or his dour well-intentioned former-boss Dwayne. Beyond the choice's narrative implications (was Playboy X's desire to reform all a ruse? / Did Dwayne's time in prison leave him unfit to run his drug operations?) there is a functional consequence to the choice. In a mission called "The Holland Play," both Playbox X and Dwayne put a hit out on each other. Faced with a choice, but without knowledge of the consequences, the player encounters a branch in the narrative. Playboy X has offered the player a large amount of money, whereas Dwayne hopes the player sees the murder as the right thing to do. But what the game doesn't surface until after the job is completed is that killing Playboy X unlocks his penthouse apartment for the player's use as a save point. It is strategically located in the northern part of the game's Manhattan equivalent, nestled right between the bridges that connect it to the boroughs of Alderney and Broker. The other safe house in the area is not very far the penthouse, but unlike the one offered by Niko's cousin, this property is significant because the player earned it through their actions. Additionally, it has two other spatial characteristics that prove advantageous to the player. First, the player

saves time entering and exiting the house because there is a warp into the apartment opposed to having to take the stairs as they do in Roman's building. Secondly, the penthouse has a rooftop patio that provides the player with a makeshift surface for landing a helicopter if they have chosen that as a frequent mode of transportation. Between its narrative significance, the process by which the player can acquire it, and its function in the game's spatial traversal, the penthouse in Northwood, Algonquin exhibits the traits that turn a game space into a place.

Lastly, it is worth considering how the player's use of safe houses change during the course of these games. Its primary function is as location to save progress in the game, and it can also be used to store vehicles for later retrieval and collect items the player may have earned. But safe houses also parallel spatial and narrative progress. Claude in **GTA III** is given a safe house on each of the game's three islands, moving from a tiny room adjacent to a garage in Portland, to a warehouse apartment with a two-car garage in Staunton Island, and finally to a real apartment with a three-car garage in Shoreside Vale. Each denotes game progress while connoting Claude's rising power. Tommy Vercetti in **VICE CITY** becomes a property owner, buying new safe houses and other businesses around the city with the money earned from missions.

Figure 39: The Vercetti Estate in Vice City

Carl Johnson embarks on the grandest adventure of the 3D era of **GRAND THEFT AUTO** games as he moves between **SAN ANDREAS**'s three cities in which 37 different

properties are available. CJ's childhood house on Grove Street in Los Santos is replaced by a trailer home in the countryside, apartments in San Fiero, a casino suite in Las Venturas, and eventually by a Beverly Hills home back in Los Santos. And Niko Bellic goes from sleeping on the couch of his cousin's rundown studio apartment to acquiring increasingly nicer homes until moving out into the suburbs. As players progress through cities in **GRAND THEFT AUTO**, the safe house as a mechanical construct relates new spaces and new opportunities to a fixed location. These progressions lead to shifts in the locations that the player most identifies with through the course of the game. But as each contributes to the player's memories of their game world experience, they come together to paint a picture of the specificity of that city.

Naming and Mental Models

In "Walking in the City," Michel de Certeau relates place-making to the functions of naming. Naming makes place believable, memorable, and habitable place. The primitive quality of naming is related to that which is whole or quantifiable. A place with a name is a basic unit of understanding; unnamed places are constantly seeking the stability of nominative forces. In videogames, the naming of a space may not refer to an official title but rather an ascribed mental model that symbolizes the use of the place. Lefebvre refers to Nietzsche's categorization of metaphor and metonymy not as parts of speech, but rather as acts that decode the world and erect mental and social architecture.[27] These processes often work subconsciously as the player makes sense of the world. A resident of the city may be able to refer to locations in **DRIVER: SAN FRANCISCO** by their proper name, whereas a tourist who has just visited once may be able to describe a few landmarks. A person who has never been there, on the other hand, may refer to places based on their experiences within the game such as the "starting area" or "the street near the big jump." And, like a first-time visitor of the city, a player might use a descriptive name for a landmark like "the steep winding hill" or "across from the Golden Gate Bridge."

Paul Martin's examination of the toponymy of **GRAND THEFT AUTO IV** considers not only its utility for navigation, but also the way "names become a powerful textual strategy to enhance stories and approach themes in striking ways."[28] He adapts the discipline of literary onomastics that studies how names in literature are used to underline allegorical readings, clarify meaning, and convey an author's message. There are over three hundred named locations in Liberty City, ranging from the macro view of the five boroughs down to neighborhoods and roads. They communicate casual information about the everyday lives of the city's citizens.[29] Martin provides a map that outlays the street naming conventions used in different neighborhoods in Liberty City.[30] For example, neighborhoods and streets in Broker (Brooklyn) are named for "Cowboys and Indians" such as Cassidy Street and Mohawk Avenue. Streets in Bohan (the Bronx) are named for breakdance moves and U.S. prisons. These street names in **GRAND THEFT AUTO IV** appear to the player as a pop-up in the HUD at the bottom of the screen, which means players need not pay attention to them but may absorb the information over the course of play. The actual names of the streets are less important than their function of establishing a "sense of history that is independent of the player."[31] Pulling back from this micro level view, other naming conventions in Liberty City tie the virtual world to its physical counterpart. Neighborhoods, districts, and landmarks are named with alternative etymologies, puns, and satire: the Statue of Happiness stands in the harbor, streets get named for nuclear bombing test sites, and businesses receive names like "Easy Lay Carpet" and the French-sounding clothing store Derriere.[32] Through naming, Liberty City is able to establish a sense of the world of **GTA** as having a cohesive irreverent tone. But naming also produces a potential side effect in which the naming conventions produce a city so artificial that it could lose its placeness for the player. "The toponymy of Liberty City," writes Martin, "does not, ultimately, give the impression of an accretion of local discrete historical events united under the sign of the city, but rather appears as a carefully designed text that works in concert with the satirical tone that pervades the game."[33]

Because place is a sense formed by an individual or groups over time, the most significant meaning is derived through use. Guy Debord's map " Guide psychogéographique de Paris" depicts a map of the city cut up and redistributed based on use rather than physical layout to illustrate the experience of psychogeography.[34] Michel de Certeau, writing about the experience of space, describes fundamental stylistic figures of spatial collapse in the urban environment. The first term, "synecdoche," means using a word in which a part stands in for a whole.[35] The second, "asyndeton," refers to conjunctions deliberately left out of a sentence or phrase. De Certeau uses this to explain the phenomenon of ignoring the travel that connects places, mentally mapping, for example, Baltimore and Philadelphia as next to each other on Interstate 95 while ignoring all the places in between. These concepts become especially important for mission-based games in which the player must travel between nodes to trigger events. The space traversed is often ignored; the destination is often represented by a single symbolic piece. High-speed means of movement, like the automobile and public transportation, reduce the visibility of the architecture being passed, while teleportation skips it completely.[36] It is for this reason that Kevin Lynch's category of landmarks refers not to notable pieces of architecture, but simply-defined "point references" that stand out in their immediate environment.[37] Of course, it is not only use through traversal that forms the individual's image of the city. Discreet interactions with unit operations that come to define the city's experience produce a lasting sense of city placeness.

Acting in the City

So far, I have addressed moving through the city as the primary mode of creating place. However, it is also the "operation spaces of games," writes Michael Nitsche, that "encourages players to engage them, find their own identity in relation to them, develop of a history with them, customize them."[38] In this conception, a physical location in the game may resonate with the player as they take part of activity in the space—memories of a hard fought battle on a rooftop in **INFAMOUS**'s Empire City or a fondness for the ruined streets of **TOKYO JUNGLE** while stalking prey as a Grizzly Bear. It is not just that we enjoy looking

at the architecture or seeing the world around us, it's that we've accomplished something that has let us know the character of the city with greater insight.

Take, for example, **THE SABOTEUR**. When the player first arrives in Paris, there are certain qualities that immediately characterize the city. First, it is set at a specific moment in time, so we imagine the connections between the fictional game world and the real situation of Nazi-occupied France from which it is attempting to draw. The player is positioned as the hero—a revolutionary that not only lives outside of the oppressive regime, but who has found his way into the social circles that would justify a burlesque house as a reasonable headquarters for the resistance movement. Period appropriate music plays on the radios of period appropriate cars; the soulful sounds of Ella Fitzgerald and Nina Simone help transport the player back in time. And the visual representation of the city immediately catches the eye: colorful districts give way to the black-and-white streets and buildings in the distance that have yet to be liberated (at least in spirit) from the Nazi occupiers. And yet, all of these representational elements do not accurately portray this videogame city's specificity. It is only as the player begins to navigate the space—zooming the streets in a car, climbing into off-limits territories, and jumping between rooftops in order to sabotage the infrastructure of occupation—that **THE SABOTEUR**'s Paris truly reveals itself. The visual flair, acoustic landscape, and even the weight of the city's history itself (all of which can be captured in other media) gives way to the "operation space" of which only videogame cities are capable. The *placeness* of this Paris emerges from understanding the disguise and notoriety systems for sneaking around, how destroying propaganda loudspeakers and military checkpoints affects the Parisians' will to rebel, and how to move around with as little resistance as possible.

Similarly, consider Paradise City in **BURNOUT PARADISE**. In this open-world racing game, there is no walking around to enter vehicles and no human body that acts in the space. The player assumes the body of the car and their range of motion is tied to the automobile's motility. Of course, videogame vehicles are not restricted to the laws of government or even

the laws of realistic physics, but they do involve affordances and constraints based on their portrayed bodies. Typically when we think of place, we imagine a site. It is a place that we can stand and look at the world around us. Even if it is geographically expansive, it is at least stationary. Placeness in the videogame city is not just a question of site, as in Norberg-Schulz formulation. Compared to the amount of time the player spends with their finger holding down the controller button to accelerate, stationary moments in **BURNOUT PARADISE** are few and far between. The player stops to enter a race, to pull into a repair garage, and perhaps they stop for a moment to contemplate where to drive to next or line up their car to hit a stunt ramp, but these locales are fleeting. Instead, the place of **BURNOUT PARADISE** must derive from the vehicle in motion, with Paradise city existing as vectors rather than points. Rather than sending the player to the same location, races in Burnout Paradise often trace similar paths—sections of straight or slightly curving roads that are more amenable to 100 mph speeds than sharp right angle intersections between blocks. Because the city was designed exclusively with racing in mind, we can look at a map of Paradise City's roadways and envision how there are racetracks and segments of racetracks laid over top of one another. Like trying to imagine why there are crosswalks in a world without humans in the Pixar film **CARS** (2006), imagining what life in Paradise City would be like for a pedestrian would break the illusion of the city. The components of this city's placeness are exciting segments of road, tricky turns, dangerous shortcuts, and gravity defying jumps. The central urban core takes on an identity in relation to in-town freeway that circles the surface roads and the mountainous highways that wind along the city's periphery. Paradise City acts as a reminder that the functions that statues, baseball stadiums, public parks, and residential neighborhoods serve in other cities are largely dependent upon the motility of the body that perceives them.

Interpreting Videogame Cities

In Chapter 6, I established a way in which the videogame city can be interpreted based on a body in motion because it is through movement that we have an experience of

space. Videogames in particular are an apt subject for this interpretive lens because they often involve forms of traversal that make many parts of the city accessible. There are numerous possibilities for what the player does while moving and their motivations for traversal, but at its core, movement allows the player to construct an image of the city—its sights, flows, and occupants—through the emplotment of their experiences with all of the many units that compose the city. And in this chapter, I have established the qualities that form a sense of place in the built environment and how these qualities become manifest in the videogame city in particular. Though I have constructed images of games throughout this dissertation, I have yet to emplot my own personal experiences of any of these cities as a whole. Thus, I want to turn to a subjective narrative-like synthesis of a handful of game cities as I experienced them. The short essays that follow recount personal perspectives on three videogame cities: the density of Los Santos in **GRAND THEFT AUTO V**, the placelessness of Steelport in **SAINTS ROW: THE THIRD**, and the question of whether or not Rapture in **BIOSHOCK** is a city or not. They serve as demonstrations of how videogame cities can be written about when considered with the lens of urban design and architecture.

Grand Theft Auto V — Urban Density and Freedom

As both a researcher and a consumer of commercial videogames, I eagerly anticipated the release of **GRAND THEFT AUTO V**. The marketing material behind it promised a dense city complemented by sprawling mountain and desert regions in a "massively ambitious and complex game."[39] In a press release, Rockstar wrote:

> *Our largest open world yet—by far—and spanning vastly diverse cultural and geographical areas, the entire world of Grand Theft Auto V is open from the very beginning of the game to explore. Visitors to the greater metropolis of Los Santos and the countryside of Blaine County will encounter faded celebrities, meth heads, party people, violent gangs, hikers, bikers and every other manner of colorful denizen. You'll be able to traverse everywhere from the tops of the mountains, through the streets of Los Santos and to the depths of the ocean floor."*[40]

Marketing material aside, **GRAND THEFT AUTO V** seemed the appropriate bookend to a corpus of videogame cities whose popularity was largely launched by **GRAND THEFT AUTO III**'s experiment twelve years earlier. **GTA V**'s leading rhetoric was its unprecedented scale—not necessarily in terms of size, but in terms of detail at all levels. Having been primed by these expectations, and having played **GRAND THEFT AUTO: SAN ANDREAS**, which looked at the same region, I entered the world of Los Santos once again.

A convention that has developed for the use of storytelling in open world games is the in-transit conversation. While driving a car, the player may find himself having a chat with their passenger or somebody on a cell phone. The dialogue plays out automatically, such that the story can be told without halting the game; exposition disguised as casual conversation. I cannot remember the mission or my passenger, but early on in my visit to Los Santos there came a moment where I was intently listening to the dialogue being exchanged while in the car. The yellow GPS line on the game's mini-map in the lower left hand corner indicated I needed to take a left at the next intersection, so as I approached it and saw there were cars waiting ahead of me, I slowed down and came to a stop in the turn lane. Then it hit me: in a game where I typically drive with reckless abandon, I had just made a law-abiding maneuver for no other reason than subconsciously it seemed like appropriate behavior.

My decision to get into the left turn lane is not a testament to "realism" in the city's portrayal, but rather a product of my lived experience in the city up to that moment. It is worth noting that the inclusion of turn lanes is relatively uncommon for videogame cities. In some cases, we might assume there is an architectural reason for the lack of turn lanes: streets that existed before cars or planning organizations that felt unprotected left turns would suffice. We can imagine parallels in the realm of videogame development. Turn lanes require that the already comically wide city streets of games to be even wider, are one more thing to have to account for in behavior patterns, and assume that there is a density of traffic that could actually fill these turn lanes. And there is, of course, the simple explanation: why

bother if few are likely to even notice? But it is this small detail that's illustrative of the Los Santos experience.

GRAND THEFT AUTO V isn't just the sequel to **GRAND THEFT AUTO IV**, it's the product of countless other factors. Directly or indirectly, it is in dialogue with the open-world city games that preceded it. It draws on technologies and designs that Rockstar Games have used elsewhere, including the combat mechanics of **MAX PAYNE 3**, the weapon switching interface of **READ DEAD REDEMPTION**, and perhaps most significantly, the view of the city at multiple scales used in **MIDNIGHT CLUB: LOS ANGELES**. **GRAND THEFT AUTO V**'s basic premise is that the player will be taking on the role of three characters simultaneously: Michael and Trevor, two former partners in crime who were separated years after a bank heist gone bad, and Franklin, a well-intentioned guy who finds himself on the wrong side of the law and is taken under Michael's wing. The game opens with the player controlling Franklin, whose path quickly intersects with Michael, which introduces the game mechanic of being able to switch between the two at (almost) any given moment. When the player selects which character they would like to control through the use of a pop-up menu, the game's camera pulls away from the character, zooming out to be an overhead satellite view of the city as it loads in the area that surrounds the character to which the player is switching. The effect is quite similar to perusing a map in Google Earth, and had been seen previously in games like **DRIVER: SAN FRANCISCO** and, as mentioned before, Rockstar's own **MIDNIGHT CLUB: LOS ANGELES**. Not only does this aesthetic effect connote the mapping technology common to computers and phones in a post- drivers' Road Atlas world, it has the added functionality of being an almost instantaneous way of traversing space. It's not just that there are three characters whose stories overlap and intersect, it's almost as if I was schizophrenically spatial.

While the idea of switching between characters is not new to **GRAND THEFT AUTO V**, the ability to quickly load from memory the active complex world that surrounds a character whose life seems to be constantly in motion is a product of pushing the capabilities

of videogame platforms' hardware and software. The resulting effect of the ability to switch between characters at great distances and viewing the world from above renders the experience of Los Santos as a place that is knowable, at least in as much as a birds-eye view provides insight into geographical connections. This effect becomes especially important for establishing the relationship between Los Santos city proper and the surrounding countryside of Blaine County. Like the games before it, the state of San Andreas is a big island (so that the designers need not worry about the geography that lies beyond their imposed boundaries). Like Los Angeles, the city of Los Santos in the south is separated from the mountains and valleys of Blaine County in the north by a range of hills. When the player takes over as the character Trevor, a backwater meth dealer who lives in a trailer in the small town of Sandy Shores, they find themselves suddenly unable to switch back the Michael or Franklin back in the city. With this warping motility taken away, I found myself experiencing a sense of isolation out in the desert countryside. Given my by-the-books approach to playing in game cities, I had not taken either Michael or Franklin out to this area earlier in the game, nor did I think to drive Trevor down into the city until the game instructed me to do so. Realistically only a few minutes of top-speed highway driving away, Sandy Shores still felt distant and removed from the city.

Figure 40: Switching between characters in Grand Theft Auto V

The guided progress of the game's mission structure plays out such that the player starts as Franklin in the city, then it introduces Michael in the city, followed by Trevor out in

the country. Trevor then drives into the city and finds an apartment, wherein the player does mostly city missions while also switching to Michael and Franklin. However, the game then again provides narrative justification for the player to venture out into the countryside with all three characters. Adventurous player types may have explored the bounds of the whole state of San Andreas long before this moment, but because I took missions in the suggested order, I experienced a particular activity flow in which I was visiting new spaces as different characters. However, because each of the characters has specific associated missions that only they can start, the character-swapping mechanic cannot be used as a form of "fast travel"—a term that describes the player's ability to warp themselves to a specific location rather than traversing the space between. The mechanic, as a result, provides a sense of the scale of the city without necessarily collapsing the experience through play. The density has a particular effect when thinking about the kind of "chaos" players have enjoyed in previous games in the series. Trevor, an agent of chaos with no internal governor, is well suited for the vast emptiness of rural San Andreas where he can fire guns indiscriminately and drive like a maniac. But in Los Santos he is a bull set loose in a china shop; the way he is depicted narratively matches the kind of reckless behavior expected of most of **GRAND THEFT AUTO**'s players. Compelled by this characterization, I treated the city differently when I took on the roles of the three characters. While there was no design mechanic that prevented me from parking a stolen car upside down on the staircase leading into a building, it seemed like it was the kind of thing only Trevor would do. Michael and Franklin might be criminals, but at least they're not psychopaths.

Saints Row: The Third — The Nowhere/Everywhere City.

The Steelport of **SAINTS ROW: THE THIRD** I experienced is the nowhere/everywhere of videogame cities. Narratively, the game is set in 2014, though the specific date is less important than the type of buildings and objects in the game that would date it. The city's "Welcome to Steelport" sign marks its founding in 1827, though much of this early history has been overwritten by new buildings and the changing face of

industrialism. The technology that appears to be used in its numerous skyscrapers covers a range of decades, from the concrete of the 1930s to today's super- and mega-tall buildings with x-bracing. Steelport seemed like a bit of an every-city, taking on the characteristics of places like New York and Chicago, with the neon glow of Asian cities like Hong Kong and Tokyo. Steelport, as its name implies, is a working-class town of steel workers and is loosely based on Pittsburgh, PA and Bridgeport, CT. With the exception of Downtown, most of the city is portrayed as lower-income and industrial. In an interview, the game's developer Volition explained how in Steelport's fictional history there were no zoning laws, causing "skyscrapers and a steel mill" to be built side-by-side and "chemical plants just dropped in the middle of everything."[41] The fictional lack of "zoning ordinances" leads to a mixture of single-family homes and multi-family high-rises that border on commercial and industrial districts. However, without identifiable zones, it was difficult to distinguish between most of the neighborhoods, and as such there are very few districts whose characteristics I remember. And yet the city seemed to embrace this non-placeness through its mission that require moving through the city as if all boundaries are porous. Districts were more important to me as are part of a gang territory-control system than they were as identifiable places.

SAINTS ROW: THE THIRD is set in a world in which three major gangs have formed a crime syndicate that has reached corporation-like status. This justifies the tallest of Steelport's skyscrapers that, in the game's fictional history, had obviously been built recently in a competition between the wealthiest gangs. These buildings glow with the colors of the gangs as a marker of their power and influence over the city. The premise of the rival gangs also produces the territory-control dynamics of the game that mark out boundaries in Steelport. Little of the history of the city is made explicit in the game, but the narrative environment tells a story of the class divide between the gangs' commercial operations and the working class that populated the city before the crime syndicate dominated the city. Cultures increasingly construct images in the city to stake their claim and, consequently, images can fabricate culture.[42] The Saints' popularity is manifest in the oversized neon

billboards that canvas the exterior of a number of Downtown buildings, drawing connections between their celebrity and cult-hero status among Steelport residents. As such, it certainly felt like Steelport was "my place."

Lynch defines imageability as "that quality in a physical object which gives it a high probability of evoking a strong image in any given observer." There are multiple viewpoints of Steelport based on in-game embodiment. As a biped that can walk, run, and climb over short walls, the city seemed like a gigantic space. However, it was evident that I was not meant spend much time on foot because missions required quick traversal, so the image of the city was formed while in cars, helicopters, and jets. While the island districts were visibly separated from one another, the edges between the neighborhood regions were not. These distinctions, which appear so visibly on the in-game map, fade in the actual experience of the city. Though the neighborhood names appear on screen for a few seconds when after I crossed a boundary, little in the environment differentiates one from the next. Most of the neighborhoods look like one another: a conglomeration of houses and businesses populated by the same kinds of activities as all the others. The gangs that inhabit the area wearing red, blue, or green provide clues to these boundaries. However, gang members tend to cluster around designated areas set too far apart from each other to produce a visual juxtaposition. As a result, the "takeover" missions in the territory-control system rely heavily on the information in the map and the experience of territory is not as apparent as perhaps the game would like to convey.

The most obvious paths players are supposed to follow, whether as a biped or vehicle, are the streets. **SAINTS ROW: THE THIRD** uses on-screen navigational aids that place yellow arrows in the environment and a distance meter at the destination to lead the player to their next location. High-speed means of movement (like the automobile and public transportation) reduce the visibility of the architecture that is being passed. Recognizing that players in open world cities often create their own paths, the development team at Volition implemented a "shortcut" system that adds convenient cut-throughs to the

game's GPS system as the player blazes their own trail through alleyways and yards, rendering concealed paths visible. Driving back and forth across Steelport, it is easy to lose sight of a fixed image. Certain major landmarks may have stood out, but because the I could rely on on-screen navigational aids, there was little reason to learn the environment.

By the time I had earned a helicopter and the Vertical Take-Off and Landing jet, however, a new image of the environment was formed. This takes into account the elevation of the city's tall buildings that was not necessarily apparent from the ground level. It also provides a birds-eye view of the city that helps to visualize the relation of locations to one another. So, while de Certeau warned against the omniscient perspective from above,[43] hovering atop Steelport actually provided spatial context for the network of traversal below. Many of the game's landmark buildings—especially those where missions take place—are large enough to be visible at a distance, and flying around the city relates them geographically. As the Saints take control of territory and property, the landscape of the city begins to glow with the purple hue of the gang's color, reflecting the boundaries permeated by the player. This purple blob illustrates how individual spaces can be quantified and occupied rather than qualified and inhabited. Though it has all the trappings of a lively videogame city, if you strip away the humorous representational layer, Steelport is fairly generic. It is functionally familiar but also lacks its own identity. Like Frederic Jameson's experience of John Portman's Bonaventure Hotel in Los Angeles, movement in Steelport occurs subconsciously as the architecture conveys me.[44] As a nowhere/everywhere city, its structure exists primarily in service of gameplay. Because of **SAINTS ROW: THE THIRD**'s parodic take on games in the open-world city genre, its focus on high-speed traversal, and the broad distribution of activities across the space, it actively works against a sentimental perspective on its individual spaces.

BioShock — Rapture as Edge Case

The city I have probably been asked about the most frequently is Rapture from **BIOSHOCK** (Irrational Games/2K Boston, 2007) and **BIOSHOCK 2** (2K Marin, 2010),

which may seem to many like an oversight. The narrative of **BIOSHOCK** explains Rapture as a great city under the ocean, built by Andrew Ryan, a wealthy industrialist, guided by the philosophy of Ayn Rand Objectivism as a place where hard working people would be rewarded and any inclinations toward socialism were squashed. As a voice-over describes:

> *"I am Andrew Ryan, and I'm here to ask you a question. Is a man not entitled to the sweat of his brow? No, says the man in Washington, it belongs to the poor; no, says the man in the Vatican, it belongs to God; no, says the man in Moscow, it belongs to everyone. I rejected those answers. Instead, I chose something different. I chose the impossible. I chose Rapture. A city where the artist would not fear the censor. Where the scientist would not be bound by petty morality. Where the great would not be constrained by the small. And with the sweat of your brow, Rapture can become your city as well."*

The city of Rapture elicits a particular aesthetic response based on its visual design alone. Its buildings are adorned with the hallmarks of Art Deco and its architectural features refer to a very particular moment in time. Game reviewers frequently praise this videogame world. As Aaron Linde wrote, "Rapture is so thoroughly realized that it genuinely feels like a place that very well could exist—not so much something created by the art and design team, but rather lifted from some preexisting pocket of hell deep under the ocean."[45] Similarly, Mike Doolittle exclaimed that "Simply exploring and interacting with the city of Rapture is truly engrossing; rarely in a game have I seen such a horrifically beautiful and original setting."[46] Jeff Gerstmann spoke of some of the detail of the city's infrastructure: "For something as potentially dingy as an underwater city, you sure do get a lot of different looks as you move along, from the boiler rooms and workshops of the city's core to the forest that helps keep the entire thing oxygenated."[47] Even Charles Herold, a reviewer for the **NEW YORK TIMES** who felt the game's narrative was unsatisfying, describes the setting as "dazzling, as whales and squid swim past underwater skyscrapers decorated with old-fashioned fluorescent signs."[48] However, the problem with Rapture is that by the time that I get to experience the city, the narrative of Rapture as it once was has been replaced by the

narrative of the city as it is now. Rapture is an evocative narrative environment, dressed skillfully with the clues that reveal the history of setting's apparent collapse on New Years Eve 1959. Though everything looks normal from the outside, a disease has taken root inside the body in the form of "Splicers"—citizens that experimented with mutational injections who have become like violent and feral zombies.

The game's story takes place in 1960 when the player's character (known as Jack) finds the plane he was aboard having crashed landed in the ocean. Swimming to the water's surface and away from the wreckage of the burning plane, the player finds themselves at the foot of a staircase leading to a lighthouse in the middle of the Atlantic. From here, they climb into a "bathysphere" which descends to the ocean floor, revealing the city of Rapture through the porthole window. A dense cluster of skyscrapers reminiscent of 1930s and 40s New York City are lit with the green hue of the deep sea, their facades decorated with neon signs. "All Good Things of this Earth Flow Into the City," greets the signs at the bathysphere station. Starting with the first few minutes, the game strongly presents rhetoric of Rapture as an alternative to the familiar cities of the world. But, like an establishing on-location shot in a film which transitions to a Hollywood set, I can only understand Rapture as a dialogue between how the space is actively experienced and how its history is described.

The edge case that **BIOSHOCK** provides highlights the significance of the *experiential* order of the city, because while it may seem to satisfy the constitutional and representational orders of what a city should contain, it never gets used like a city. Spatial exploration in the game proceeds mostly linearly, almost like a guided tour of Disneyland in which the patron is escorted from land to land but has the freedom to choose whether to ride Peter Pan's Flight or It's A Small World first. The technique is well suited for a game like **BIOSHOCK**, but as a result there's very little circulation; the space of flows is occupied by neither player, Rapture denizens, or other city processes. As with all good edge cases, there are ways of thinking of Rapture like a videogame city and not just as a city setting. To say that the Splicers no longer constitute a citizenry is debatable, but they certainly inhabit the world as active denizens.

They patrol for living creatures and the so-called brainwashed Little Sisters that roam Rapture looking for bodies from which to extract a precious genetic material. The Little Sisters are children who have been transformed into mindless parasites for the sole purpose of harvesting the ADAM stem-cell compound from corpses. Interestingly, the Little Sisters use an infrastructural network in Rapture that nobody else has access to: the heating furnace ducts. They use this system to move around the city protected from the Splicers who are out to steal their ADAM. Additionally, Little Sisters come under the protection of the imposing Big Daddies who, in their monstrous diving suits affixed with weapons, escort Little Sisters through the city and can help them into and out of the heating ducts. Watching the Little Sisters and the Big Daddies, I witness the relationship's interplay with circulating space that provided an indication of how Rapture worked before its undoing. So maybe this edge case demonstrates that it's not that **BIOSHOCK**'s Rapture isn't a city, it is that it's just a city for something else that was not me or other players.

Watching People Play

There is a wealth of information to be gleaned from seeing others interacting with the videogame city. My own experiences of the city are typically products of a goal-oriented approach to completing the game. I usually do what the game asks me to, when it asks me to do it, capriciously straying from the path on occasion. The framework of this dissertation establishes what a city's specificity is in relation to the experience a player has with it, and short of conducting countless user studies to track how people play, the most efficient way of illustrating the range of uses comes from examining user-recorded videos. Add words like "funny," "awesome," "glitch," "random," or "free roam" to the name of any videogame city in a search of online video host YouTube, and there are bound to be videos of players who have chosen to share alternative interpretations of the city. From cars gaining access to the roofs of houses to characters climbing to the tallest landmarks in the city, many of these videos illustrate the playful behavior videogame cities afford. Players test the boundaries of game space in the first-person rooftop running game **MIRROR'S EDGE**, when a glitch

allows them to safely fall to the city's surface streets without dying such that they can walk around this forbidden area.[49] And a montage of **SLEEPING DOGS** clips shows a player enjoying piling up cars inside of a building.[50]

Players take these cities seriously, too, and the level of detail incorporated into **GRAND THEFT AUTO IV** made it prime subject for textual poaching. Online photo repository Flickr is home to a set of images created by Matthew Johnson of Liberty City landmarks compared side-by-side with their real New York City counterparts.[51] Fans not only produced an interactive map of Liberty City to show significant locations and items,[52] they also created a Google Street View version of the city that was composed of over 80,000 screenshots taken from within the game.[53] And there are even videos that provide tours of the city from different Liberty City subway lines.[54] In each of these forms of creative output, we can see a different interpretation of the same city all at once as they marvel at verisimilitude, attempt to qualify and categorize, archive, and expand. The experiential order of the framework of this dissertation is extensible into innumerable possibilities.

This chapter explored the question of what might place look like in a videogame city when we consider what it means to move, act, and spend time embodied as something in one of these real-and-imagined worlds. The purpose of this inquiry is, of course, multi faceted. Foremost, examining the placeness of games helps to establish a link between experiencing physical and virtual spaces in hopes of elucidating the complicated relationship between cities we know and cities that might be. It also helps explain the phenomena of forming attachments to game spaces that don't have multiplayer social qualities and why players might disagree on what makes for a compelling game location. By designing for placeness, game developers can lend specificity to their cities that make the experience of each videogame world meaningful and unique.

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CHAPTER 8:
OPENINGS AND CONCLUSIONS

In this dissertation I have undertaken my own journey into the city to understand it as a videogame phenomenon. This process included finding a descriptive framework such that the writings of spatial philosophers who described the contentious definitions of the city could mesh with an architectural definition. Thus, the framework of constitution, representation, and experience is meant to link physical cities with mediated cities to account for the "real-and-imagined" spaces that Edward Soja describes as characterizing contemporary life. These cities can be thought of in terms of the structural elements that compose their architecture, the way this architecture communicates, the kinds of activity they support, the infrastructure that governs them, and how it is we navigate their spaces. Taking the individual units that compose these categories, we can perform a unit analysis derived from the inevitable subjective experience of these encounters. A description of a videogame city is 'emplotted' as a narrative-like synthesis that gives an impression of what a city is like from a particular viewpoint. It is a powerful tool for uncovering the rich complexity of cities of all kinds. And, in the process of having done this research, I have begun to think about videogame cities as they are reflected back into the physical world around us.

Playing in Urban Space

A domain that lies largely outside of this dissertation is that of play and games in physical space. However, it is worth considering subjects like pervasive games and urban play as a way of thinking about the videogame city has influenced play in the world. Numerous writings have looked at the spaces of cities as playgrounds. Iain Borden writes that the city should incorporate spaces in which people can move their body in playful ways.[1] Alberto Iacovoni, referring to the transformation of space into play place, wrote, "there is a part of the rules of every game that needs room, that becomes a playground, architecture

whose limits represent prohibitions and opportunities for the player, who is thus transformed into an inhabitant."[2] Merely walking around a playground, or a videogame space, is not enough to understand it. These spaces must be engaged with in order for them to come to life and for us to understand how they function. Iacovoni writes that playgrounds, physical and virtual, are the visible form of a system of rules.[3] Because playgrounds are made through the eye and body's relationship to space, we cannot ignore the importance of the participant's movement in conjunction with their interaction with objects in the space. It is important to note that this space need not be constructed purely from scratch. Creating playgrounds is merely a matter of changing the way we perceive of the space while constructing rules applicable to the space.[4] One way to do this, as notably done by the Dadaists and Situationists, is to take a known space and invert it, like children do when they play "don't touch the hot lava," in which they are not allowed to step on the ground.[5] By constructing temporary spaces of play, games challenge players both with wholly fabricated environments and familiar places that have been transformed.[6]

Skateboarding's transformation of city space into temporary playgrounds is a grounded example of Iacovoni's observations at work and can be read as a proto-videogame city. The evolution of skateboarding was in large part affected by cultural and architectural forces. While the earliest skateboarders merely moved across flat terrain, skateboarding's growing popularity among surfers in the 1960s and 1970s meant its nascent practitioners looked for man-made landscapes that mirrored the contours of the ocean.[7]After carving the rolling streets, skateboarders found the pools of Californian homes left empty by the drought to be a close match to the curl of a wave. As more skateboarders spent time in concrete pools, the shape of the architecture changed the way they rode the pool—developing new tricks and discovering methods of perpetual motion.[8] Not only was a pool about carving the sides, it became about the space of the lip and the vertical space above the pool, the surrounding terrain, and the space produced from within the body.[9] As pools gave

rise to man-made skateparks, and skateparks gave rise to new ways of skating that required new architecture, the shape of the space took meaning.

Contemporary videogame designers have explored the affordances of the physical city with regards to playful activity. In 2004, students and faculty in New York University's Interactive Telecommunications program took to the streets around Washington Park in a so-called "Big Game" of **PACMANHATTAN**.[10] Dressed in colorful costumes with cell phones clutched in their hands, four players assumed the roles of the ghosts Inky, Pinky, Blinky, and Clyde, while a fifth donned the yellow garb of Pac Man. On the other end of the cell phone were another group of students, each in control of one of the game's five actors. Pac Man's "Controller" was tasked with guiding the Pac Man player through the streets to collect imaginary dots, while the Ghosts' Controllers attempted to triangulate Pac Man's position based on each other's movement and lines of sight. This highly physical game was not only an imaginative remediation of its digital arcade counter-part, it placed familiar objects from a game world into real urban space. Previously, Lantz had worked with game designers Katie Salen and Nick Fortugno, on a commission from the University of Minnesota Design Institute that took the form of 25-foot tall inflatable board game pieces being moved by teams of Twin Cities residents under the direction of an online and phone voting system.[11] In both cases, the figures of games found themselves in larger-than-life public spectacles. From Toronto artist Posterchild's Super Mario question mark blocks hung from trees and power lines, to short sketch comedy films of Mega64 who perform videogame parodies of games like **ASSASSIN'S CREED** in "real life,"[12] the behavior and objects of videogames have seeped into our everyday spaces.

What happens when the elements of videogames cities more subtly pervade urban space? Like the examples above, there is a kind of "cross-experiential" dialogue between virtual and physical space. There are numerous forms of "ubiquitous games" that take place in physical space such as geocaching scavenger hunts, "alternate reality games" that blend digital interfaces with physical activities to compose a transmedia experience, and locative

games that use geographic positioning. Pervasive games like these have ambiguous spatial, temporal, social, and interface characteristics.[13] These ubiquitous types use physical space as a platform, taking into consideration the built environment, geography, the portability of media, and human interaction. Location based games in particular do well in urban environments because of population and architectural density. A game that requires players to physically travel to locations, such as Google's smartphone-based **INGRESS** (2013) or the Mixed Reality Lab's mobile phone based **TYCOON** (2006), rely on having enough players to cover their intended playfield, and pedestrian mobilities in particular help constrain the domain of a play space. Cities are full of opportunities for exploration and surprise, so in examples like the playful transmedia experience **THE GAMES OF NONCHALANCE** (2010) in San Francisco or the many entries into the annual Come Out and Play festival, developers encourage play in the physical world in a way that reconfigures typical notions of how city space is used. And other games can be adapted for urban settings, as with the example of the sessions of the motion-controller tag game **JOHANN SEBASTIAN JOUST** (Die Gute Fabrik, 2012) that took place while riding the Boston subway system. These games have begun to explore the possibilities of urban play in imaginative ways.

Consider, for example, the inspirational story of Miles the "Batkid," a 5-year old leukemia patient whose Make-A-Wish Foundation dream was to be Batman for a day. On November 15, 2013, the city of San Francisco was transformed into a make-believe Gotham with overwhelming support garnered through broadcast and social media.[14] The premise of the event was that Miles was to be surprised with his very own Batman costume, and would then accompany his superhero idol on a tour of the city to stop familiar villains who are up to no good, and would eventually receive the key to the city.[15] Looking at this plan, it should not be surprising to learn that one of the organizers for the Bay Area Make-A-Wish Foundation was a former Lucas Arts game developer named Eric Johnston, who had previously worked with the organization to help another patient make a videogame to let kids with cancer fight back against their disease.[16] Johnston, who played the role of Batman

for the day, helped his co-organizers plan the day, build props and gadgets, and coordinate the actors who would bring Gotham to life. On their mission, Batkid and Batman moved across the city in a black Lamborghini adorned with the Caped Crusader's signature yellow logo. The news went out to San Francisco residents, who turned out in droves and lined the roads of his journey to cheer on the Batkid. Television news channel KRON4 produced an image of the Batkid's itinerary with his slate of encounters laid over a Google Earth image of San Francisco. More so than comics or film, this image was reminiscent of the maps of videogame cities that are primarily marked with "objectives" rather than geographic information. The plan read similarly as well: rescue a damsel in distress from the trolley tracks; save Lou Seal, the mascot of the San Francisco Giants, who had been kidnapped by the Penguin; prevent the Riddler from robbing a bank.[17] To the Batkid, his family, the actors and organizers, the game-like scenario was a playful day of make-believe to bring happiness in the face of years of suffering. But for the citizens of San Francisco who watched from the streets, or people across the country who read about it online or watched video footage, San Francisco was not just transformed into a Gotham movie set, but a real-and-imagined world that blended physical geography with story, characters, events, coordinated infrastructure, and goals in a navigable space. Batkid's San Francisco was a videogame city.

One of my objectives in writing this dissertation was to highlight the ways the experiences of playing in videogame cities could reflect back on the practices and construction of our everyday worlds around us, and Batkid's San Francisco is an evocative example. It's not that we should be incorporating games and play into our environment (which is a whole other area of inquiry), it's that the videogame city produces a way of thinking about space. As someone who has spent countless hours experiencing these worlds, I can look to the physical city around me and draw connections with games. I strategize to accomplish my objectives by plotting a day's worth of errands in the most efficient way possible. I'm keenly aware of poor navigational signage and conversely, I understand the shortcomings of GPS turn-by-turn directions. I can recognize playful opportunities, like a

ledge to jump up on or a park to cut through. And my eyes turn not to the architectural accomplishments of buildings but rather the space that is left over. Videogame cities do not just exist in PlayStations and personal computers, they are actually all around us.

Possibilities

The array of opportunities in the videogame city, compared to that of our physical cities of the world, has so far proven highly limited. As discussed earlier, the verbs that mostly frequently describe what it is players are doing in these cities come down to fighting, shooting, driving, climbing, exploring, and playing on pieces of architecture. As I described in Chapter 2, there are other more city-specific activities that appear in games like **GRAND THEFT AUTO V** or **SHENMUE**, but these are usually components of something else and not the focus of the activity itself. Games that offer alternative experiences of the city are rare, likely because they are less viable as commercial products. One such example is **CART LIFE** (Richard Hofmeier, 2013). Though it uses static screens with animated images instead of navigable vistas of polygons, the game illustrates the hardships of reduced physical and social mobility in the city by adopting the perspective of a character who owns a street vendor cart and who needs to balance staying above the poverty line with life's other commitments. We take for granted how easy it is to traverse most videogame cities, forgetting that for many even getting to and from work can take up valuable hours in the day. The games in the **CITY BUS** series serve to remind us of the complexities of piloting a large vehicle along tangled, narrow streets. And in **ANIMAL CROSSING: CITY FOLK** (Nintendo EAD, 2008) you must maintain your relationship with your neighbors. But you're unlikely to find games that tackle the some of the present issues of the city such as cyclists and drivers frustrated by having to compete for road space, the zoning of education districts, utility repair, socio-economic inequality, historical preservation, or the tribulations of homelessness. These issues can be addressed in subtle (and sometimes even unintentional) ways. For example, when it becomes evident in **TRUE CRIME: NEW YORK CITY** (Luxoflux 2005) that it is impossible to handle all of the requests that come over the police dispatch radio, the

player might feel some sympathy for budget-strapped metropolitan law enforcement. Other games have experimented with more overt representations, such as **HEY BABY** (LadyKillas, 2010), a game in which the player embodies a woman who is under constant harassment by people catcalling her on the street. It becomes evident that the tactic of shrugging it off with insincere gratitude does not alleviate the problem, so the game provides the option of a machine gun that will dispatch with the offenders. There is a wealth of opportunity that has yet to be explored for games that play with the city. Hopefully, as the tools to produce games allow greater participation in the creative process, inventive game designers can place players in new, potentially imaginative situations.

In addition to expanding what players do in the city, there is a world of opportunity for representation in the urban landscape. Most portrayals of the videogame city are contemporary or near-future/past. Historical cities like those of the **ASSASSIN'S CREED** series attempt to expand the representation of city types, but these are still usually Western and fit nicely into common narratives of urban development and evolution. Looking back into the past, there are many city forms to consider. What kind of experience would the cave monasteries carved out of the Cliffside in Turkey produce? How about the Incan mountain top city Machu Picchu? Or even the cities of ancient Greece? Sometimes we see these represented within other game contexts, but never as the game's reason for being. Similarly, there's a lack of diversity in portrayals of cities of the future. Though science fiction literature and film has long dealt with alternative utopias and dystopias, it is rare to see them imagined in the structure of circulating navigable spaces. The Citadel of the **MASS EFFECT** series presents an image of a galactic capital, but it functions primarily as a hub for retrieving quests in the first game. **MASS EFFECT 2**, on the other hand, makes interesting use of the city's potential for varied activities through information gathering sequences, a stealth reconnaissance mission, and a compelling detective mystery story arc. But even games like **MIRROR'S EDGE** or **REMEMBER ME** that depict creative narratives for future cities, the *cityness* remains the same. Games, unlike physical cities, have a particularly crucial affordance:

they can experiment with forms that don't necessarily have to function. As such, they should serve as fertile ground for alternative urban representations.

Of course, the dynamics of the city are the most important underrepresented aspect of this domain of game design. Walking along the streets of Liberty City one in-game night, something occurred to me about **GRAND THEFT AUTO IV**. Given that I am the criminal element of the city, I didn't have to worry about being mugged. Anybody who lives in a city is at least attuned to the idea that with density comes crime. When there are a lot of people packed into a small space there is always the chance that not all of those people are going to be good, well intentioned, or lawful. In Liberty City, however, I need not worry about somebody asking me for my cell phone or wallet. And, in the case of the **ASSASSIN'S CREED** games, I become the pickpocket myself—taking coins from the dense population of pedestrians who are minding their own business for no real reason other than the game permits it. Videogames cities are full of hostile spaces, but these threats are almost always known and the game provides methods of dealing with the situation. In **ULTIMATE SPIDER-MAN**, we're able to play as the hero who stops the mugging or the purse snatching, but we certainly never have to worry about becoming the victim ourselves.

Power dynamics are another underexplored subject. Though there might be relationships between good and bad, friend and foe, videogame city players don't often find themselves having to negotiate spaces under the control of a governing institution to which they do not have some sort of access. In **INFAMOUS**, though the city has fallen to lawless factions, the player's primary goal is to use their newfound electricity-based superpowers to restore some sort of order—a relatively primitive method of dealing with control dynamics. But the situation is not so clear in **GLOBAL CONFLICTS: PALESTINE** (Serious Games Interactive, 2007), which the player takes on the role of a freelance journalist who has traveled to Jerusalem to cover the story of the struggle between Israel and Palestine. The goal is to move around and between the two halves of the city, conducting interviews and gathering details about the current political climate. The game is intended to be an

educational tool for the classroom, teaching students about the practice of journalism, but the game's subject matter details the highly contentious nature of rights to physical space. The player encounters people who are trying to move between the two halves of the city, gathering stories of "this side and that side," while the military police on both sides attempt to interfere with access to information. The game constructs a spatial and operational reality of the conflict in Jerusalem,[18] demonstrating how the city functions given the constraints of the political climate.

As in the case with the expansive, yet underexplored possibilities for city-specific activities in Chapter 2, examples like **CART LIFE**, **HEY BABY**, and **GLOBAL CONFLICTS: PALESTINE** allow us to see the videogame city's potential for addressing social and cultural issues spatially. Small-scale games about cities have typically taken the form of simulation or management games like **BLOCKS & LOTS** (Esperanza Community Housing Corporation et al., 2013) and **MINI METRO** (Dinosaur Polo Club, 2014) because complex dynamics can be explored without state of the art graphics. In fact, **BLOCKS & LOTS** can be play both on the computer and as a tabletop board game. But, as individual and small videogame developers begin to enter the broader landscape of videogames, and as the tools for developing these kinds of 3D cities are made more accessible, there will be new opportunities to explore embodied perspectives on being in the city.

Videogame City Studies

The closing pages of a dissertation tend to leave as many questions unanswered as the preceding pages have answered. The question I jotted down on a whiteboard at the start of my doctoral career—how can we understand the cities of videogames?—transformed through the course of my research. Beginning with the philosophical work of Henri Lefebvre on the complex nature of spatial production, discovering connections between what we perceive as real and what we assume is imagined, finding a language with which to talk about game design in the same breath as urban studies, and understanding how experience ties real-and-imagined spaces together has revealed the videogame city to be

perhaps even more curious than I had imagined. In order to account for the subjective nature of personal experience, I drew the concept of emplotment from critical geography so that I could paint a picture of videogame cities by looking at individual components. The initial framework of *constitution* and *representation* was intended to demonstrate the commonalities of the cities of physical and videogame worlds. My addition of the *experience* to this framework served to bridge the gap between seemingly disparate forms by looking at what it meant to occupy, move through, and perform activities in these spaces. This framework then gave rise to new questions. What kind of 'imaginary' is the videogame city? What does it mean for videogame cities to represent urban infrastructure? How do the game mechanics enabled by embodiment contribute to the experience? And where does a sense of place in the videogame city come from? Each of these questions remains fruitful and their answers will change along with game development ideas and practices. So, then, what is a videogame city? It's a place for saving the day and riding the train; satirizing culture and experiencing vertigo; simulating traffic and scavenging after the apocalypse. It is even a place for driving a car recklessly off of a ramp onto the roof of a building. The videogame city uses the computational and spatial qualities of the medium to produce experiences that make us think about the nature of cities as the urban imaginary of our era.

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[2] Iacovoni, *Game Zone*, 15.

[3] Ibid.

[4] Ibid., 21.

[5] Ibid., 23.

[6] Ibid., 38–42.

[7] Borden, *Skateboarding, Space and the City*, 29.

[8] Ibid., 37.

[9] Ibid., 108.

[10] "Pac Manhattan," Pac Manhattan: About, 2004, http://pacmanhattan.com/about.php.

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